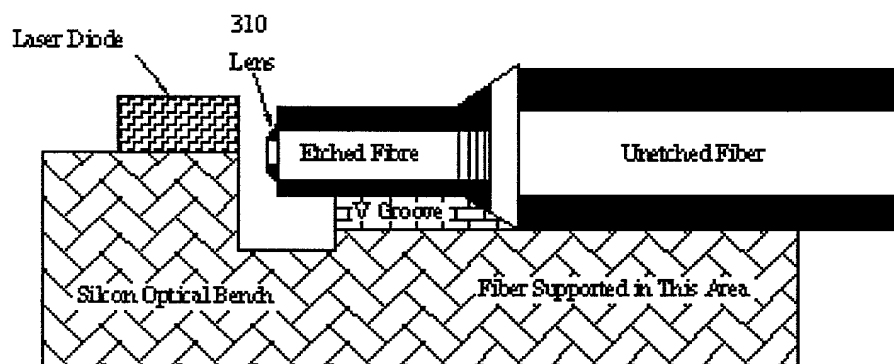


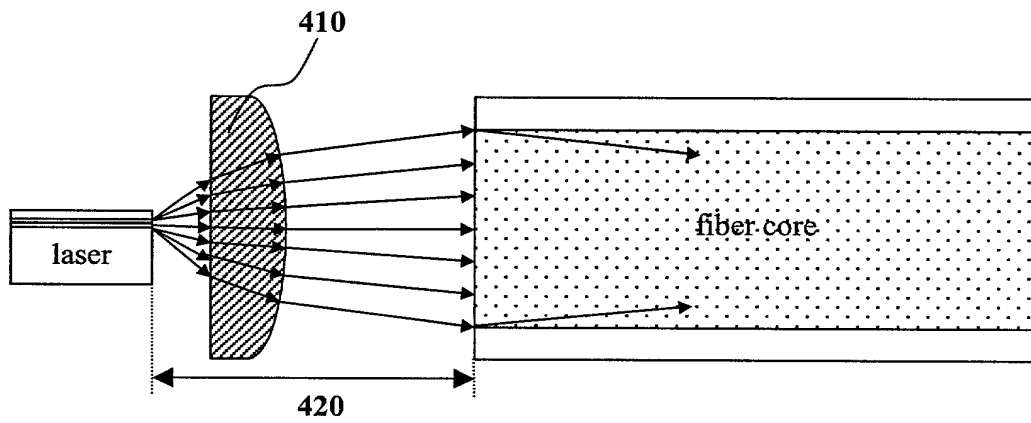
PRIOR ART

FIG 2



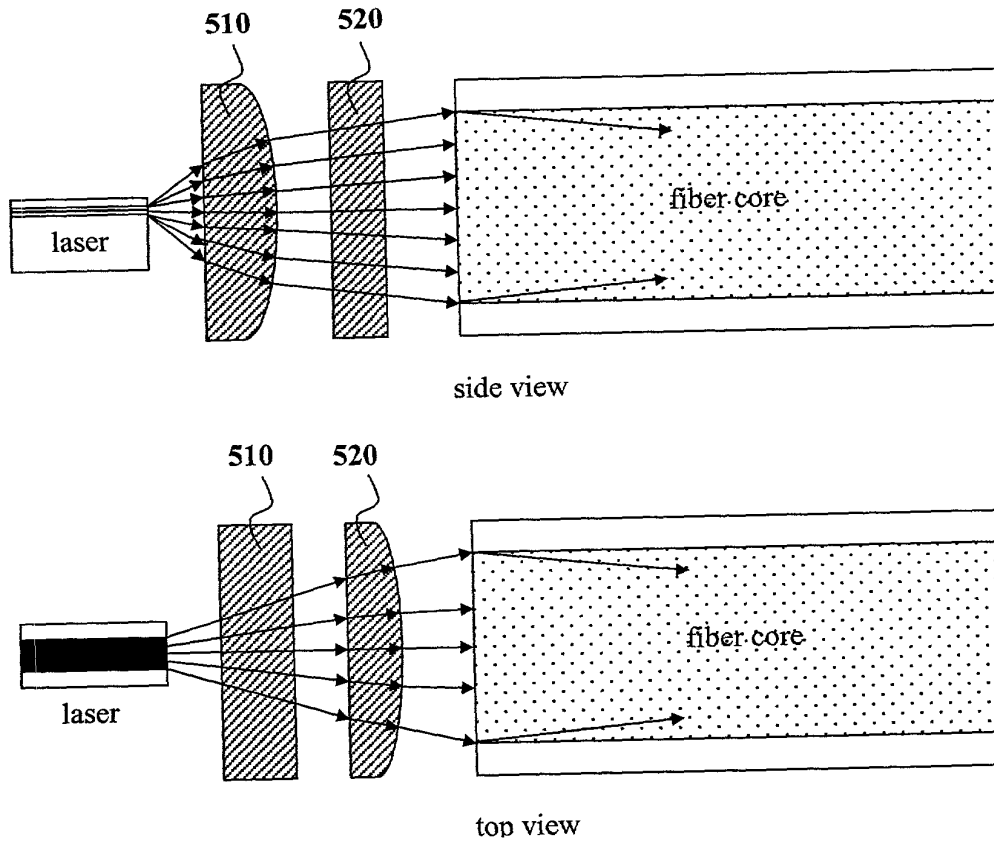
PRIOR ART

FIG. 3



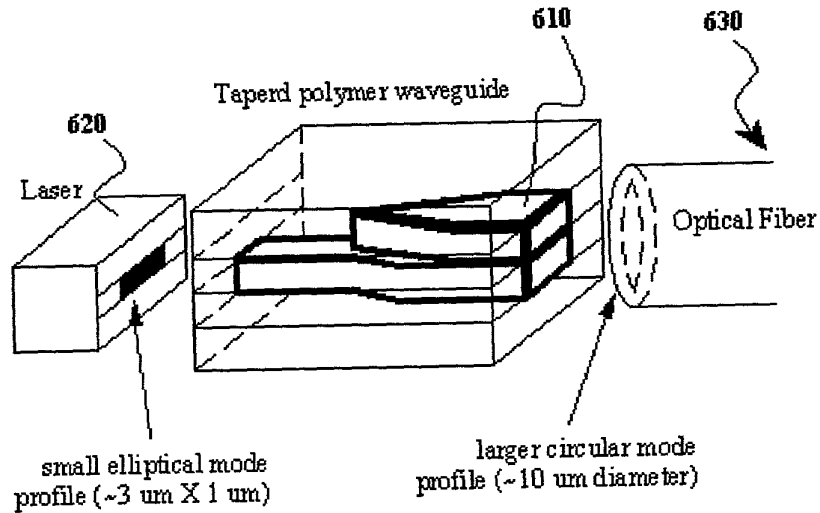
PRIOR ART

FIG. 4



PRIOR ART

FIG. 5



PRIOR ART

FIG. 6

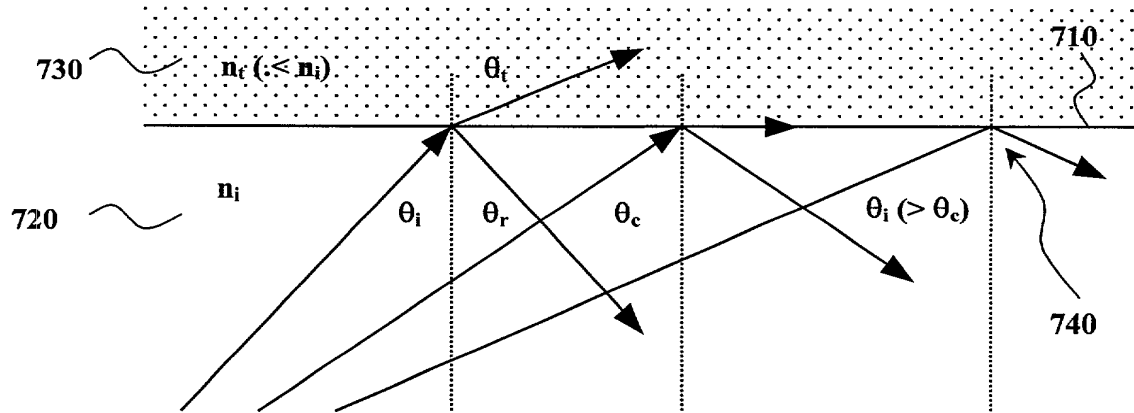


FIG 7

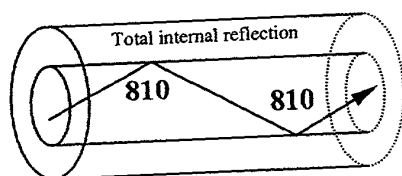


FIG. 8

10083674-101501
FOR TOP SECRET

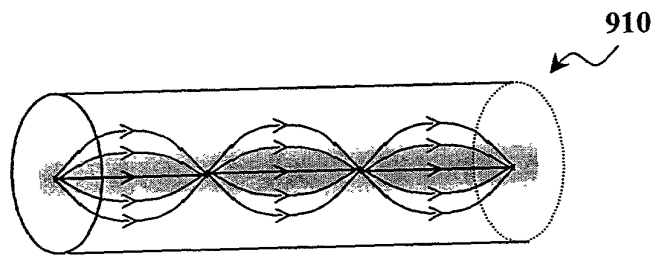


FIG 9

106707-429800T

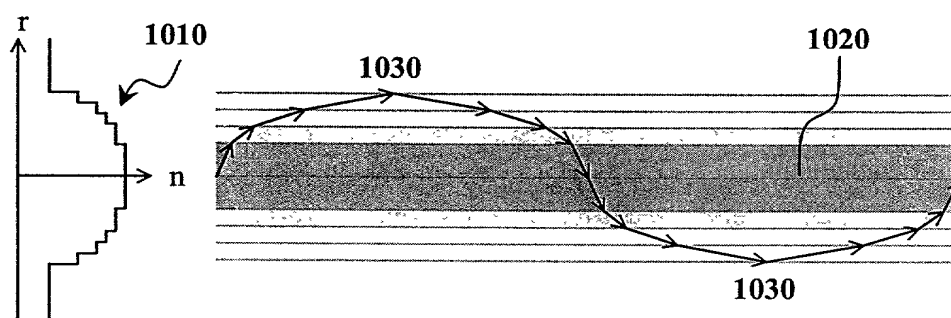


FIG 10

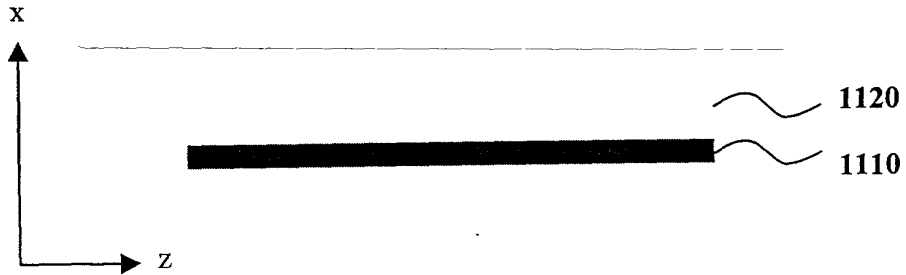


Fig 11A

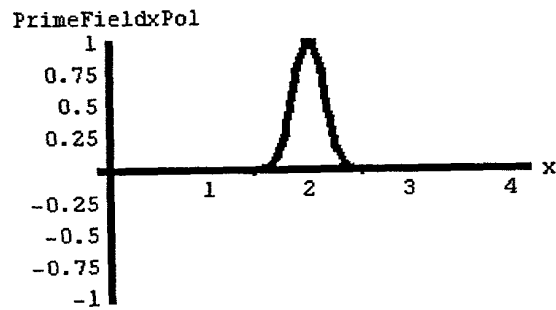


Fig 11B

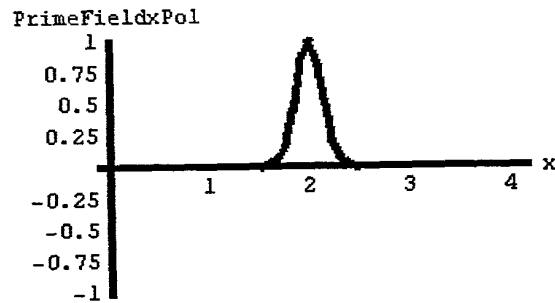


Fig 11C

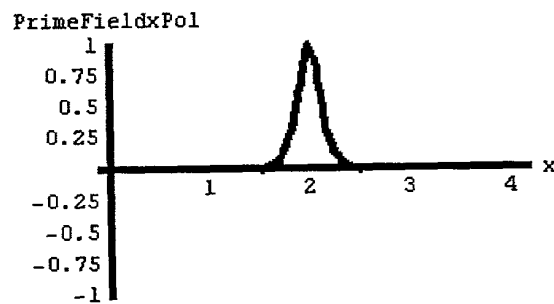


Fig 11D

TOP OF 429E8001

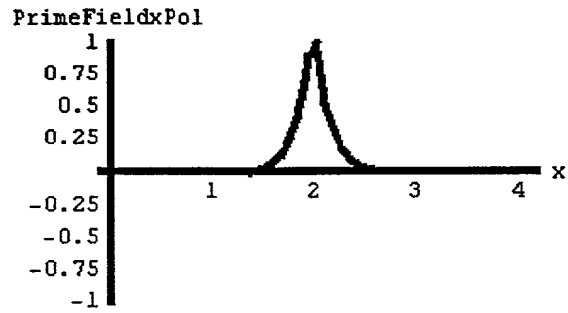


Fig 11E

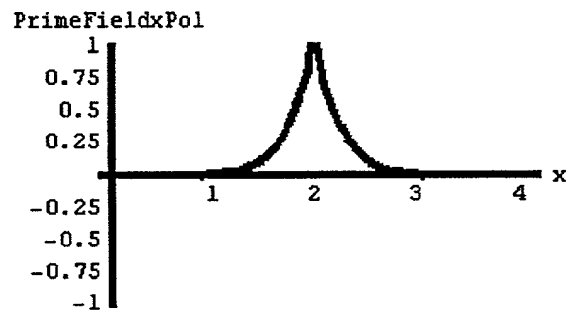


Fig 11F

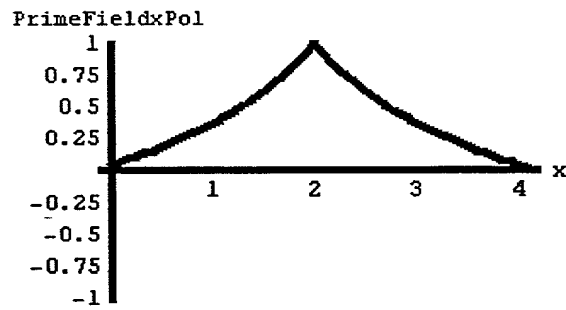


Fig 11G

10083674-101501

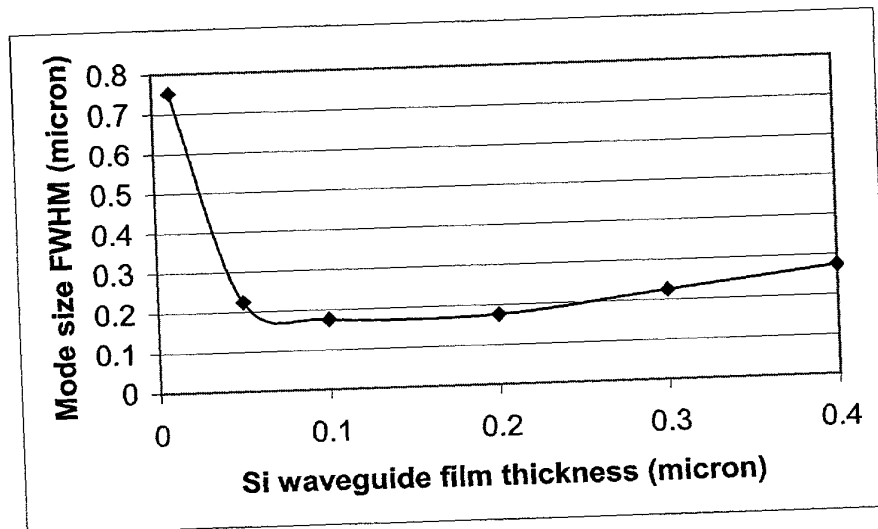
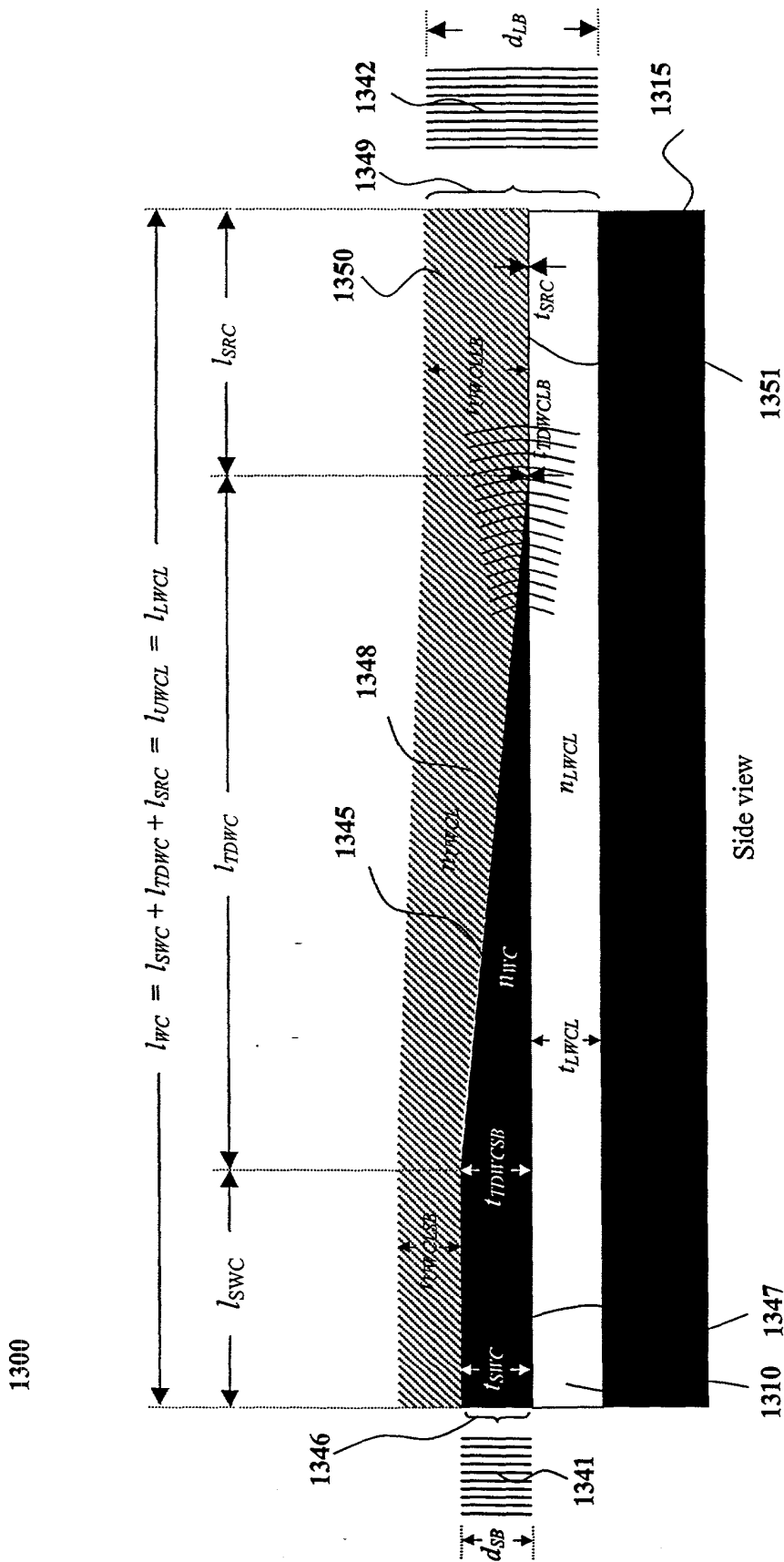


FIG. 12



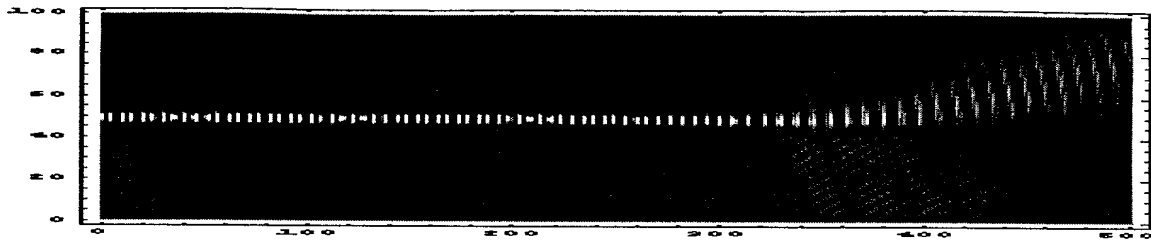


FIG 14

106T01" 429E800T

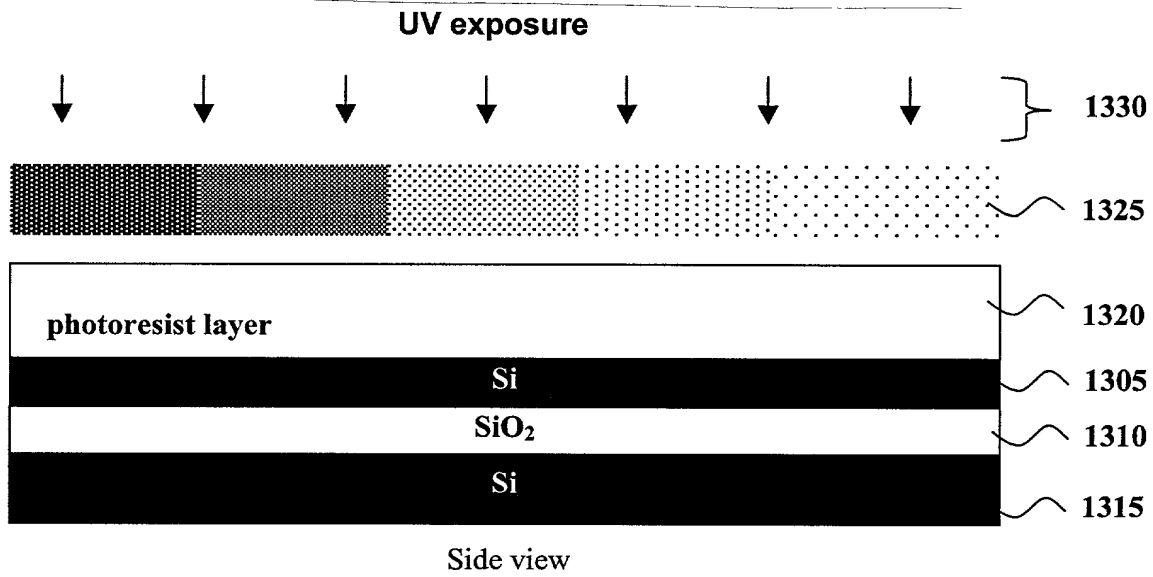


Fig 15A

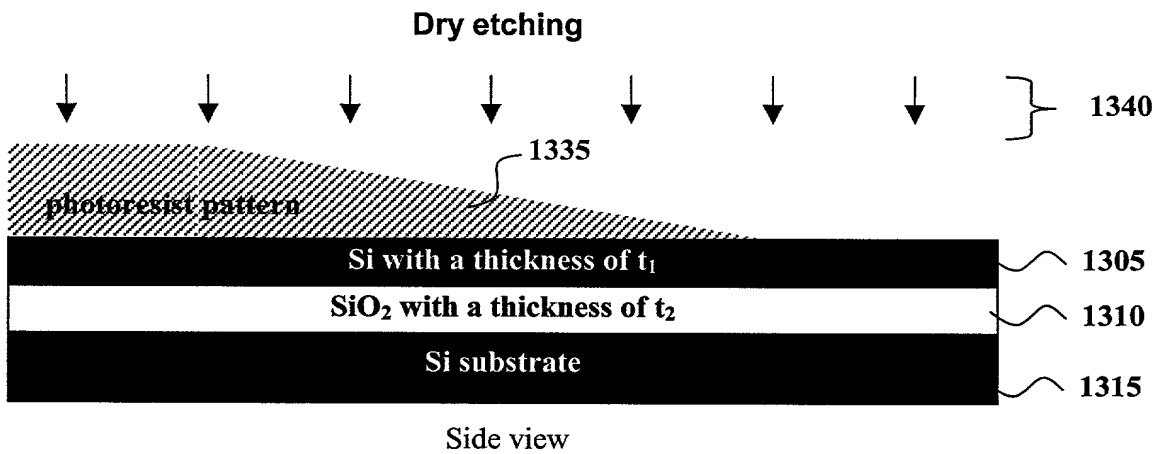


Fig 15B

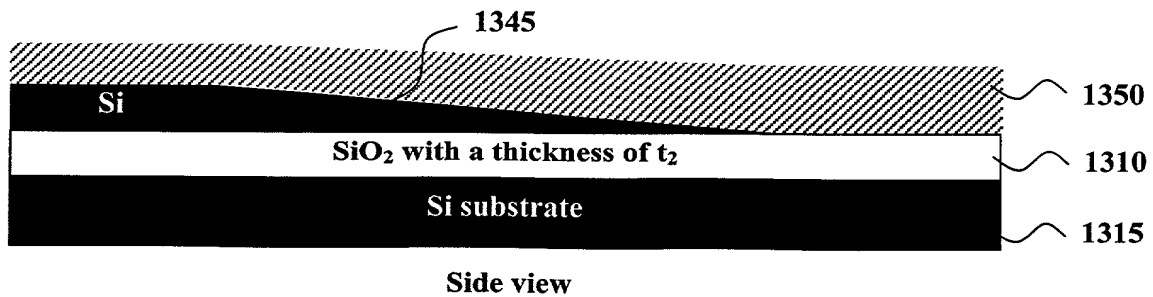


Fig 15C

10036674-101901



FIG. 16

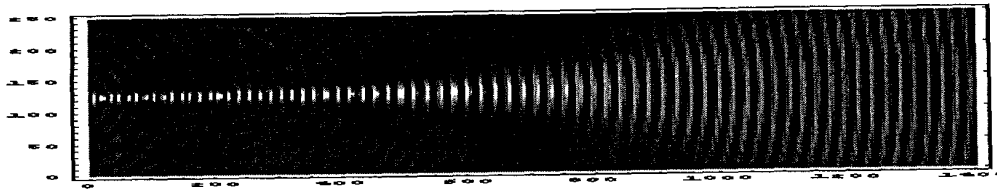


FIG 17

10083674-101901

1500

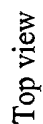
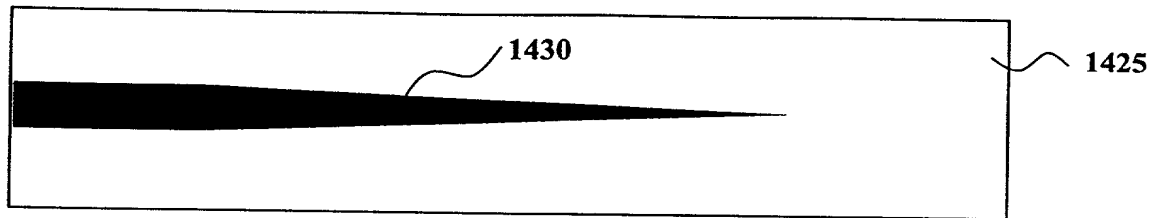
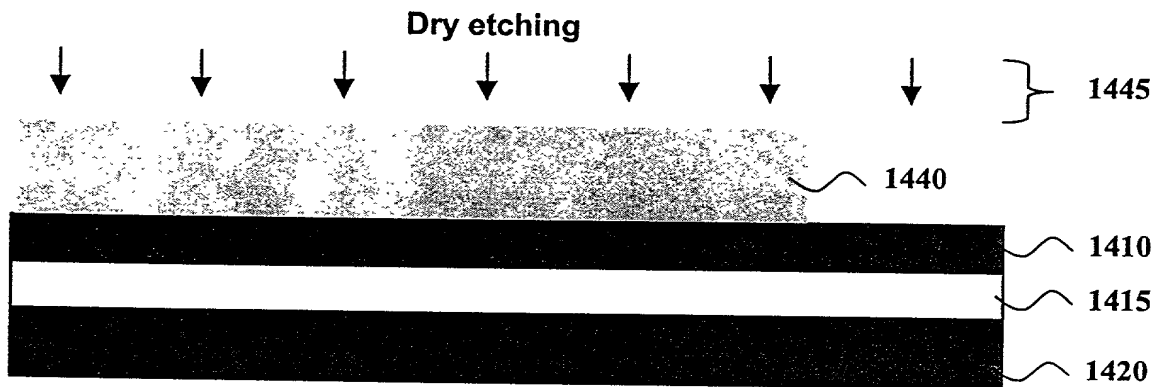


FIG. 19



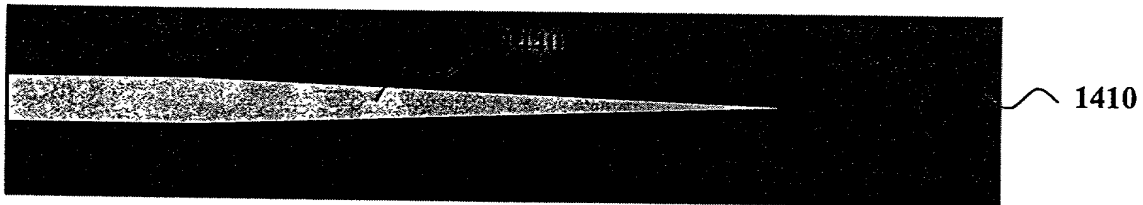
Mask top view

Fig 18A



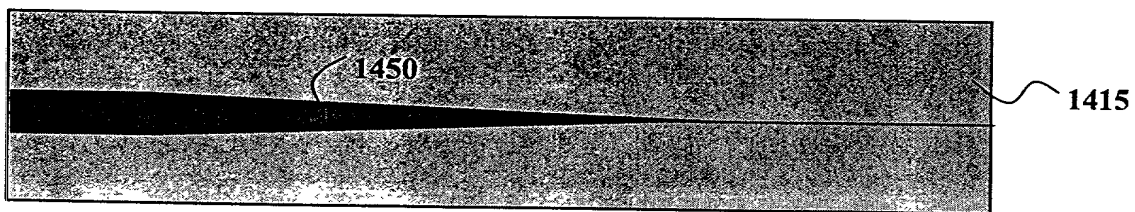
Side view

Fig 18B



Photoresist pattern top view

Fig 18C



Si tapered down/narrow section top view

Fig 18D

1008674-10901

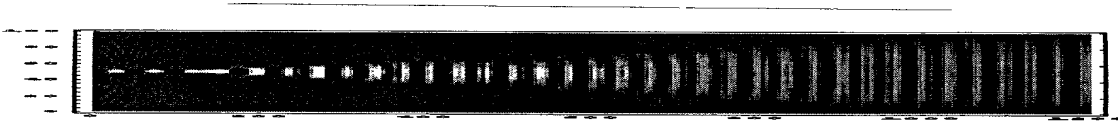
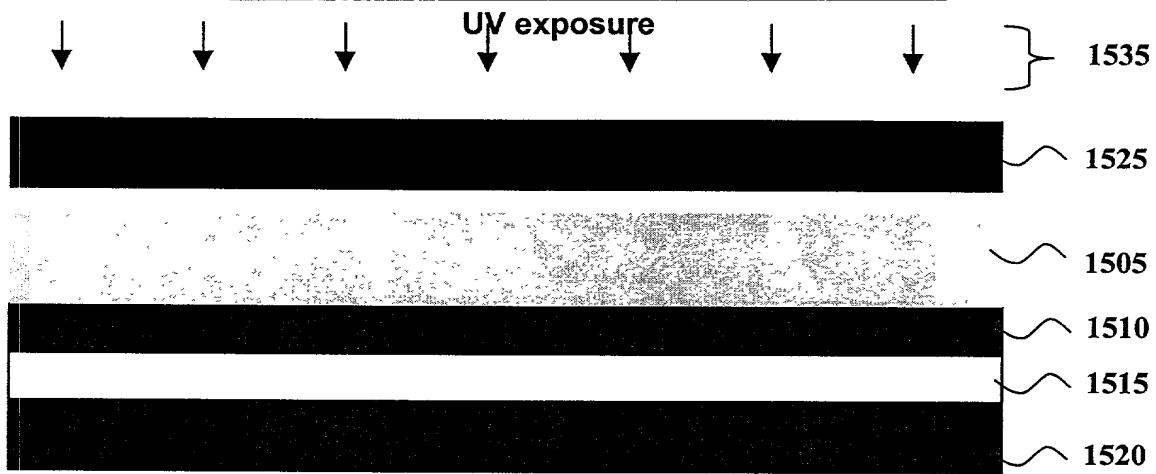


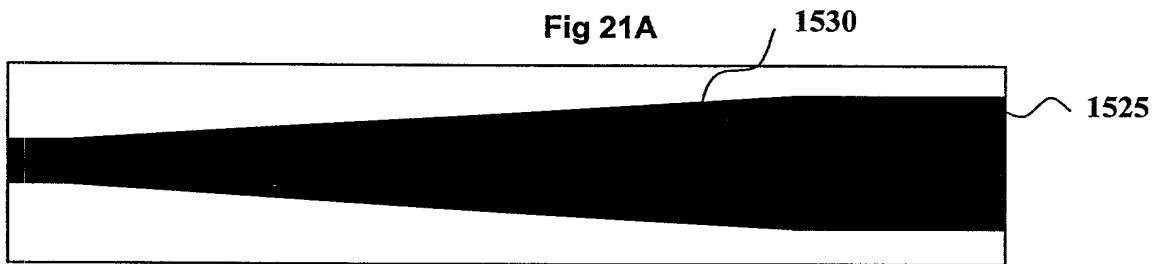
Fig. 20

106T01" 4/26/2001



Side view

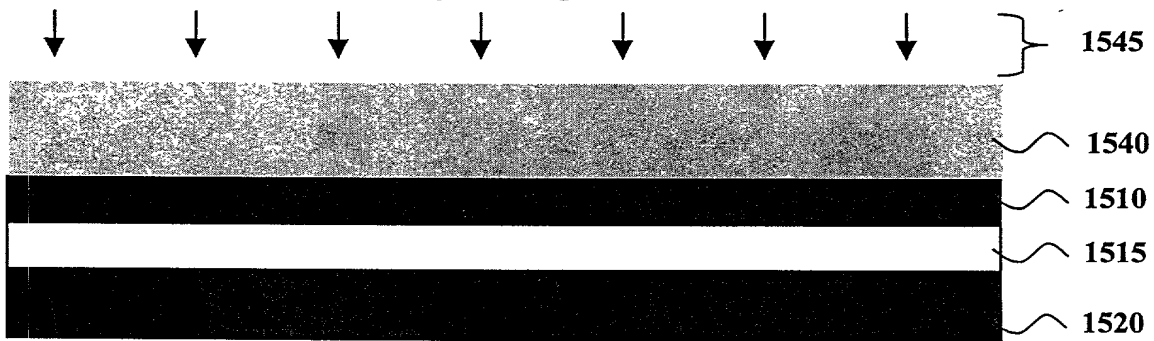
Fig 21A



Mask top view

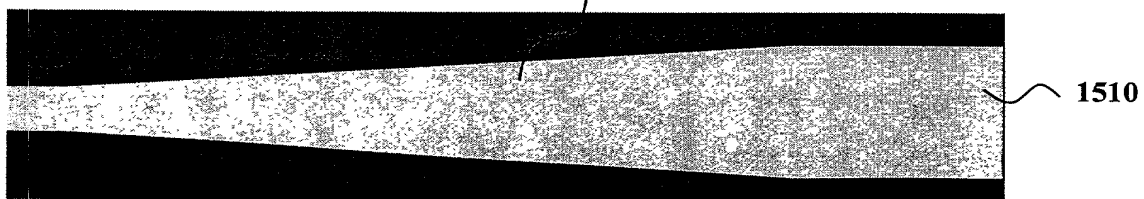
Fig 21B

Dry etching

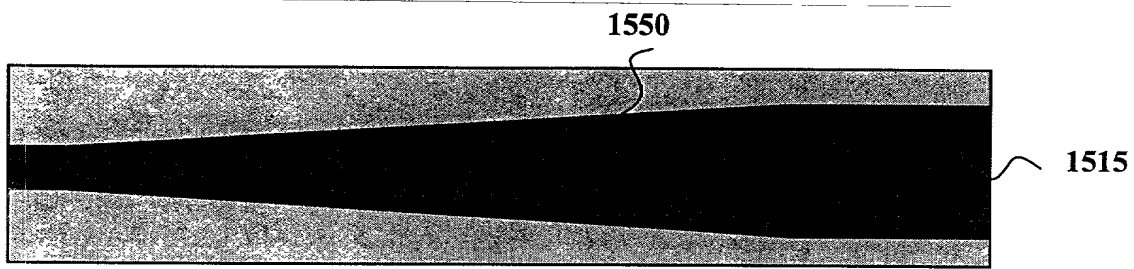


Side view

Fig 21C
1540



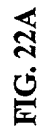
Photoresist pattern top view Fig 21D

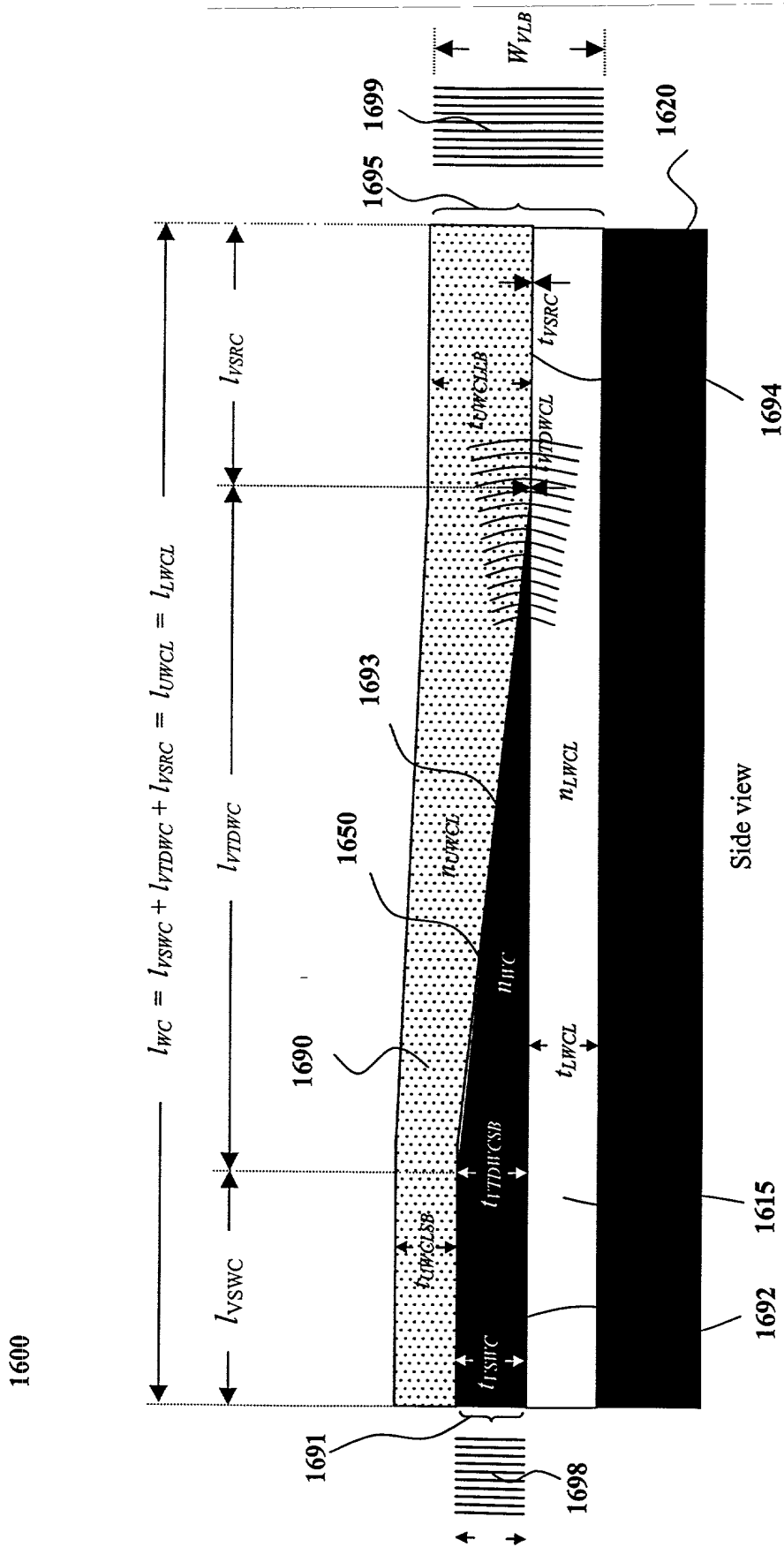


Si tapered up/wide section top view

FIG. 21E

10033674-101501





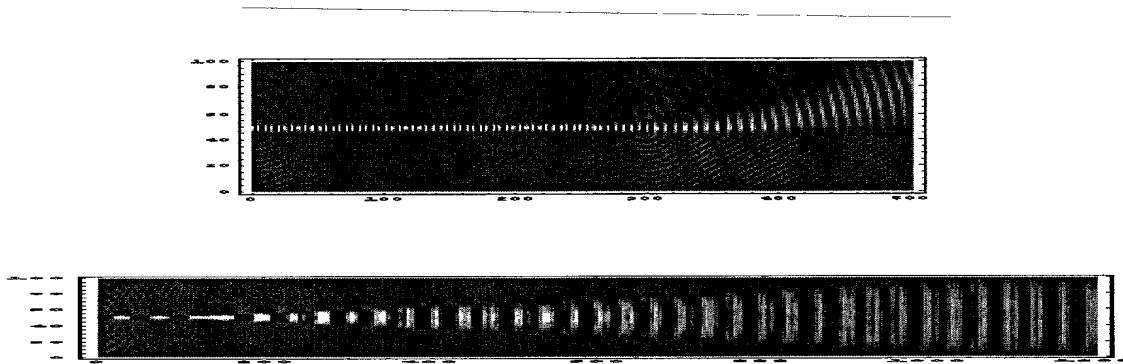
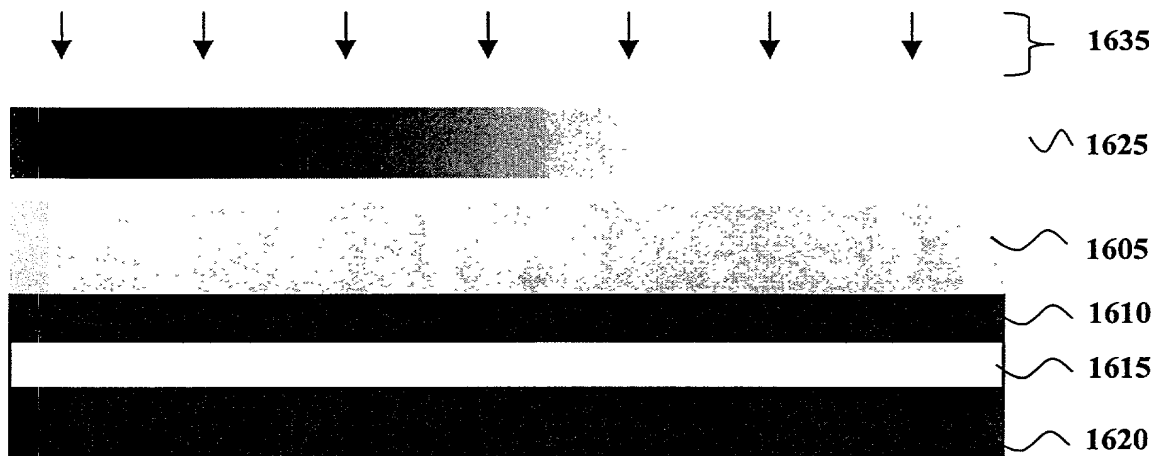
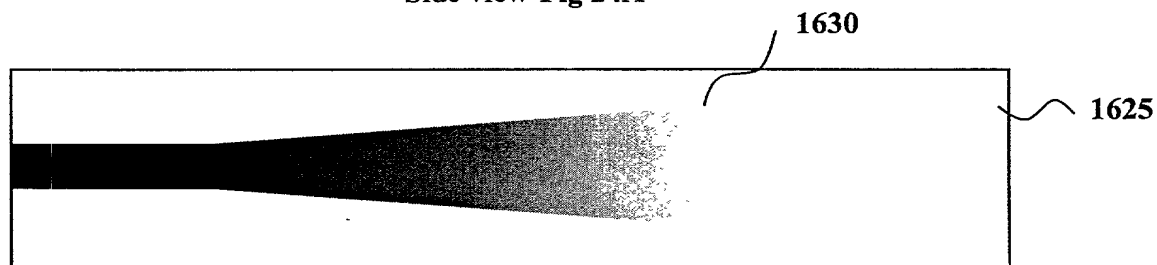


FIG 23

UV exposure

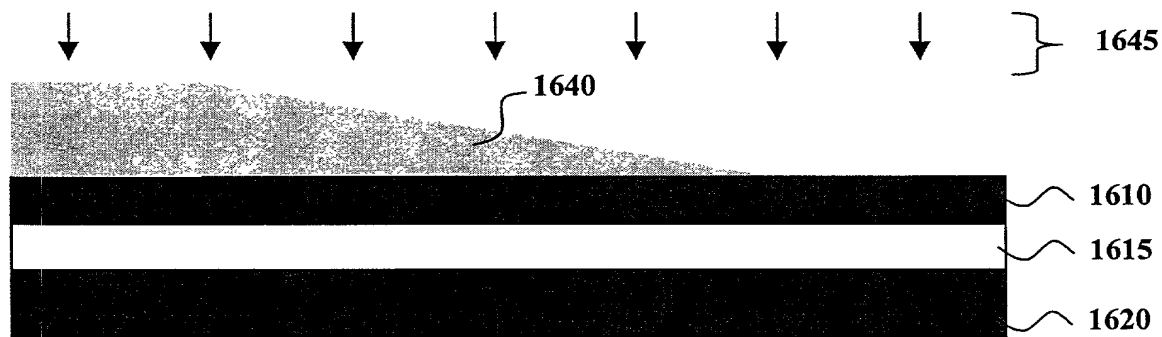


Side view-Fig 24A

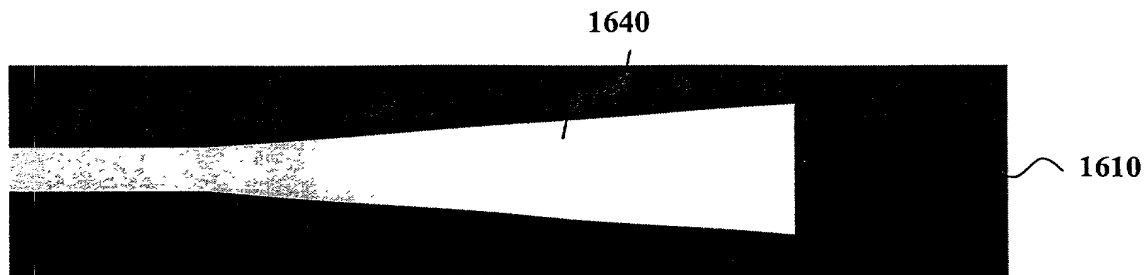


Mask top view-Fig 24B

Dry etching

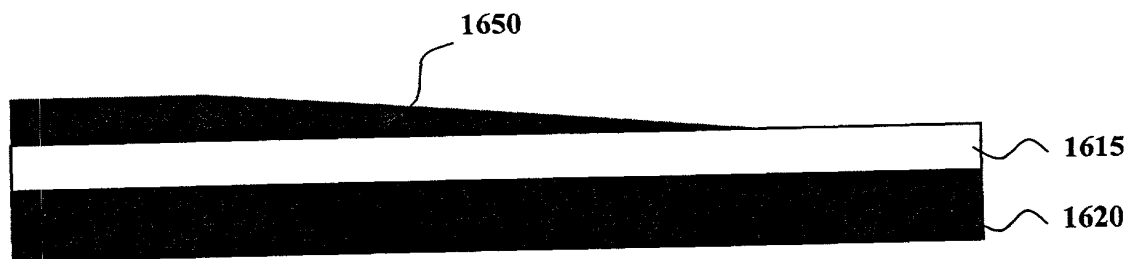


Side view-FIG

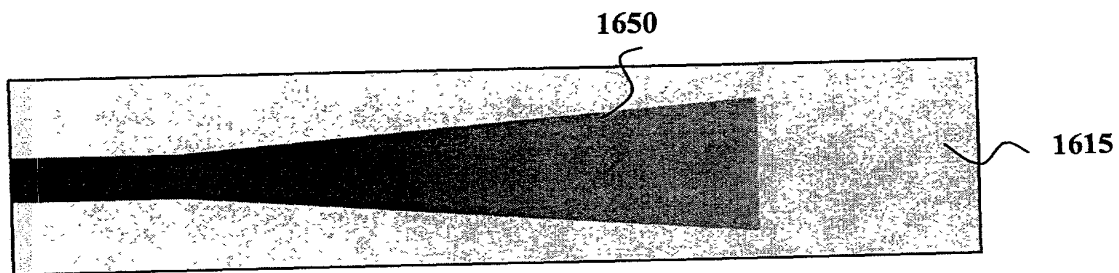


Photoresist pattern top view-FIG24D

106T07" 429E9001



Side view-FIG 24E



Si tapered up/wide section top view

FIG. 24F

FIG. 24F

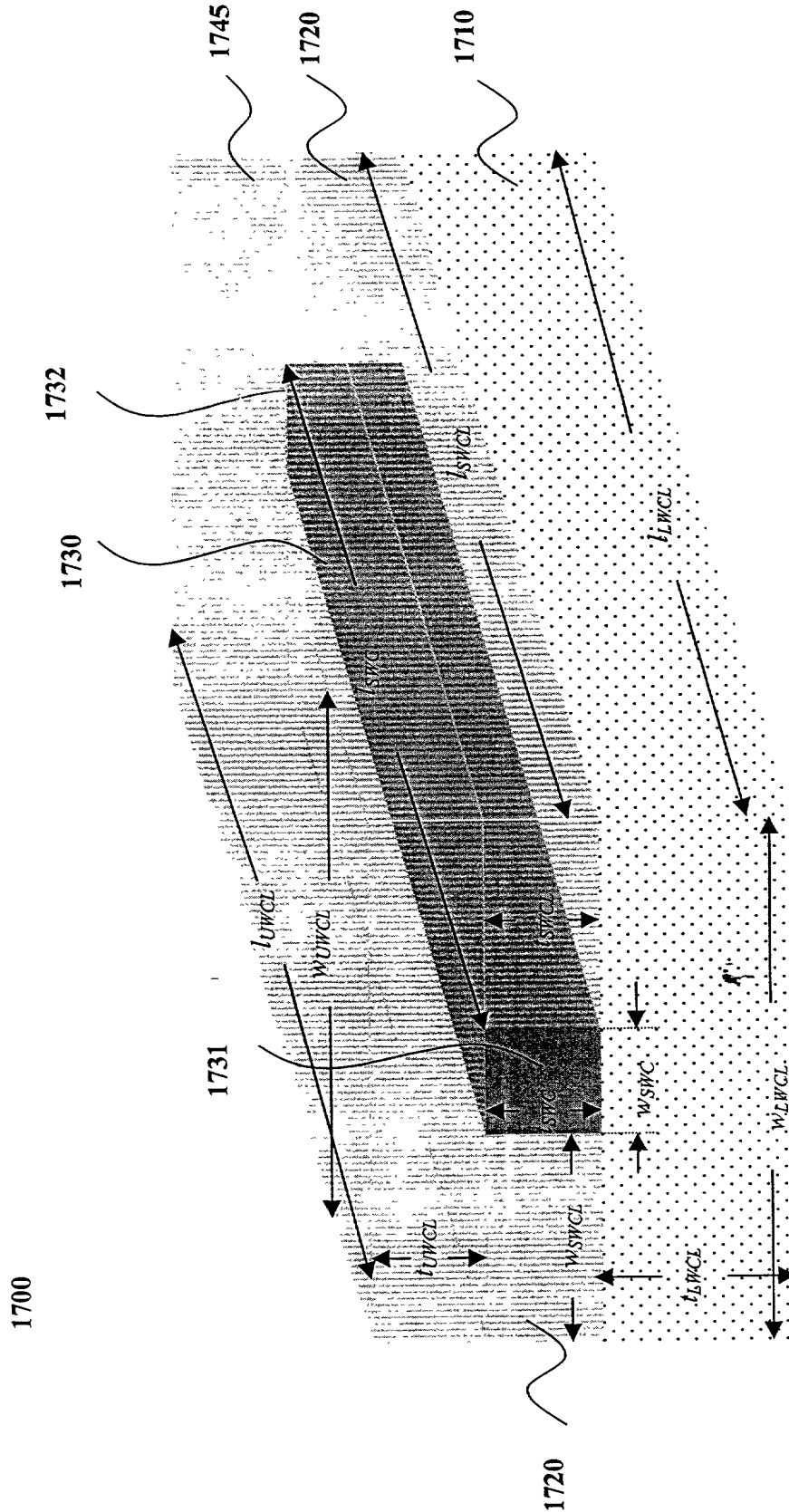
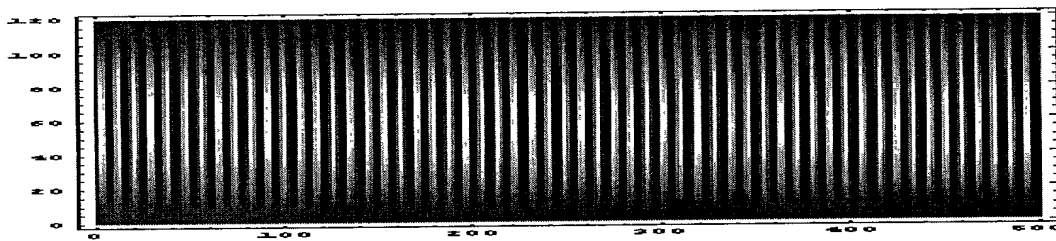
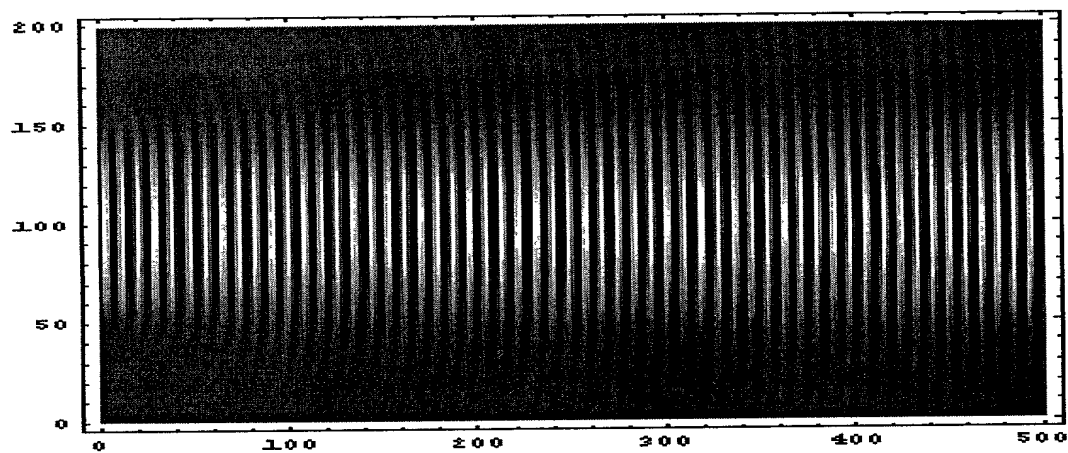


FIG 25



side view



top view

FIG 26

105T01-4/9E8001

Fig 27A

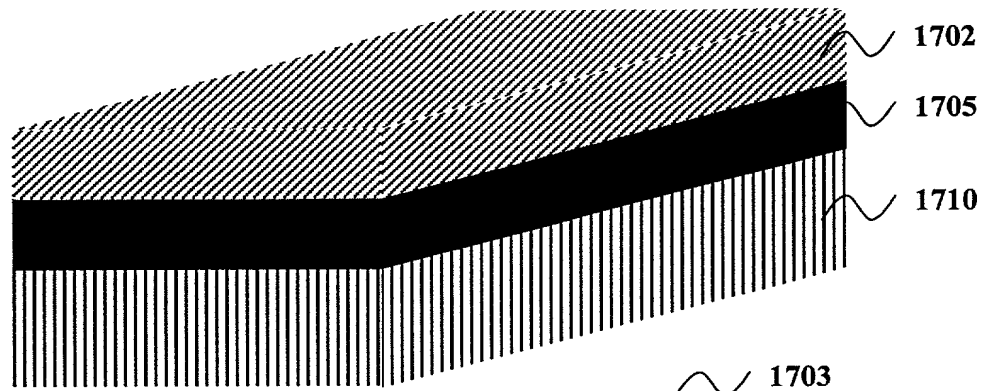


Fig 27B

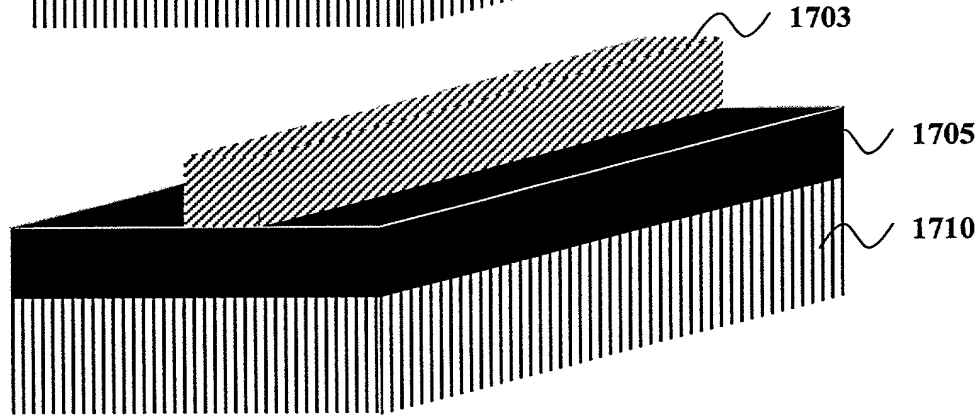


Fig 27C

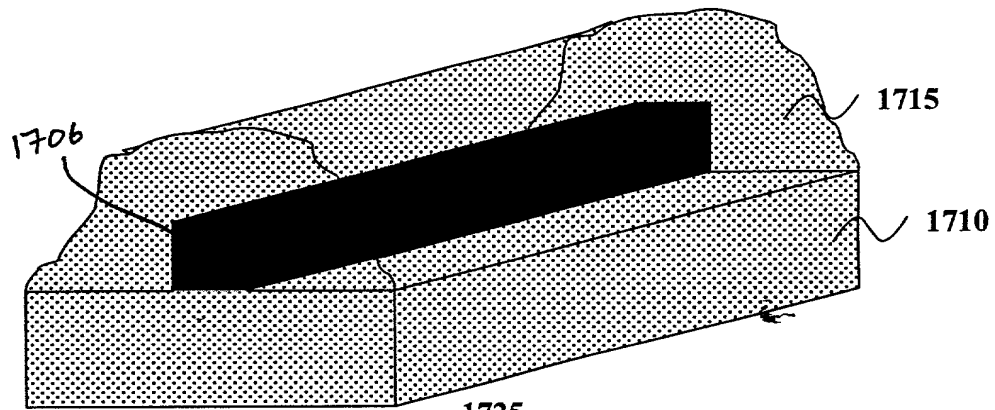
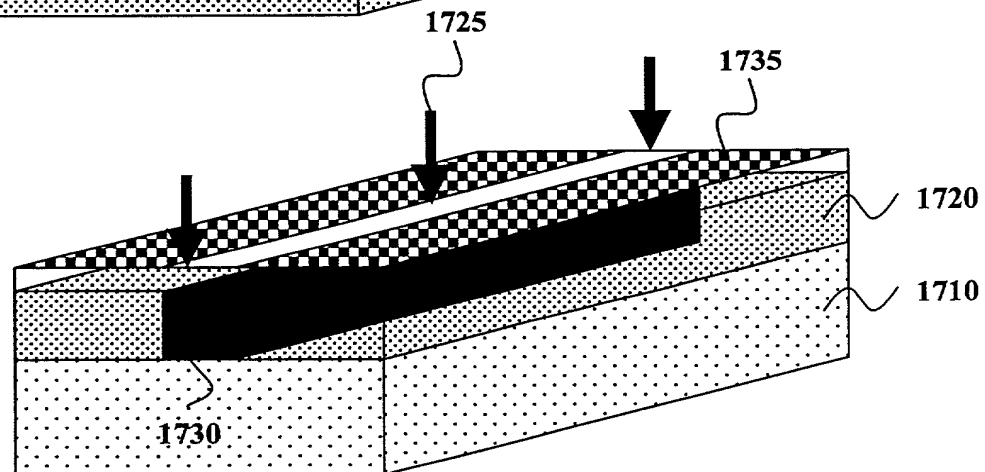


Fig 27D



10083674-101901

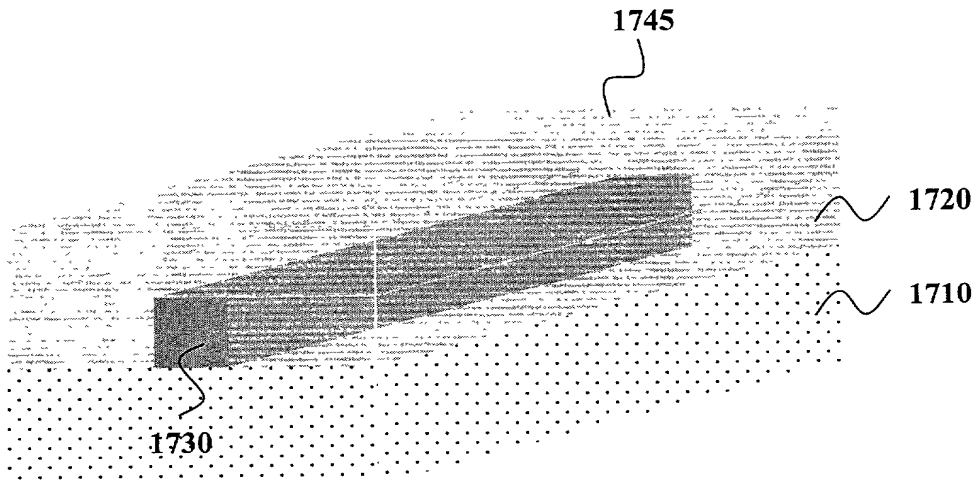
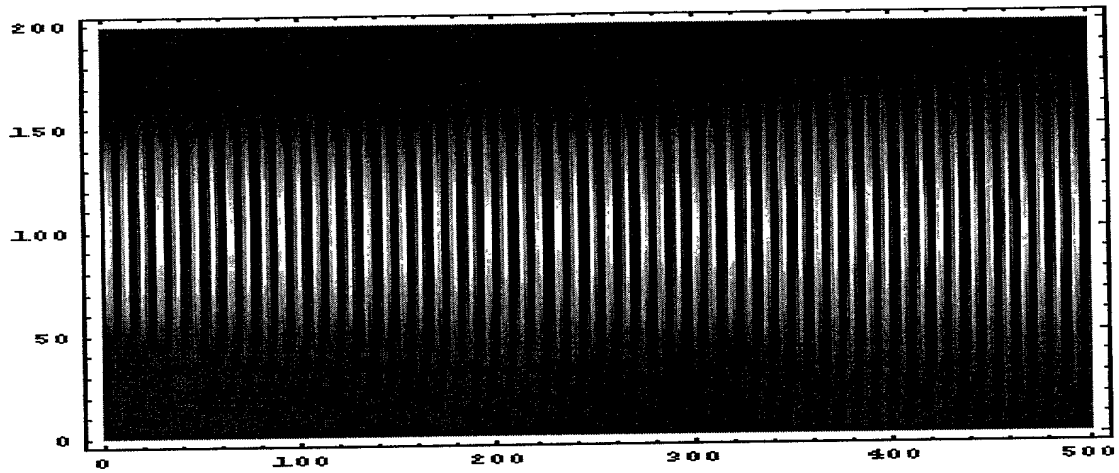
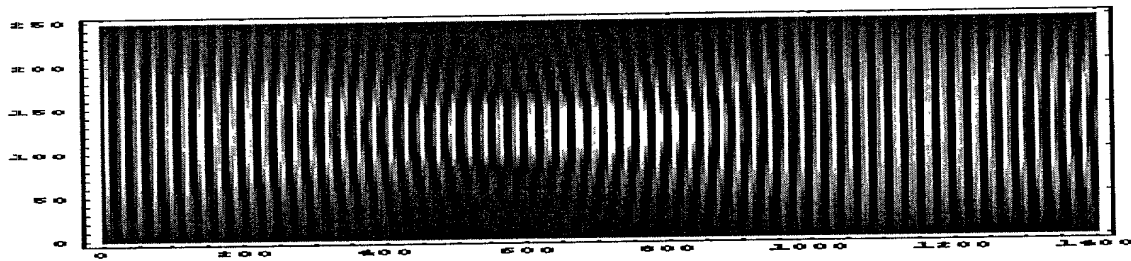


FIG. 27E



top view



side view

Fig 29

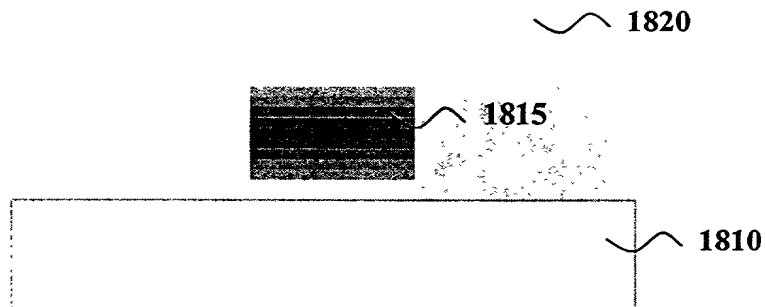
10063674-101901

FIG 30A



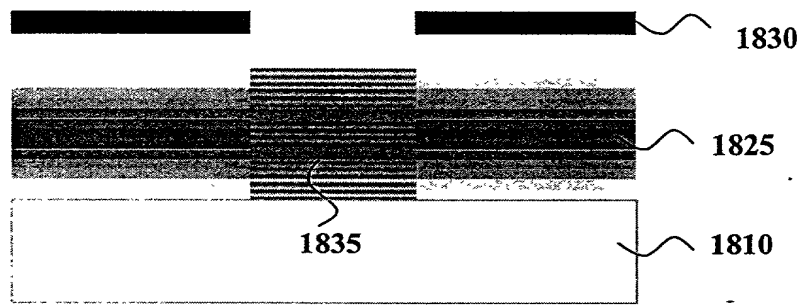
Cross sectional view

FIG 30B



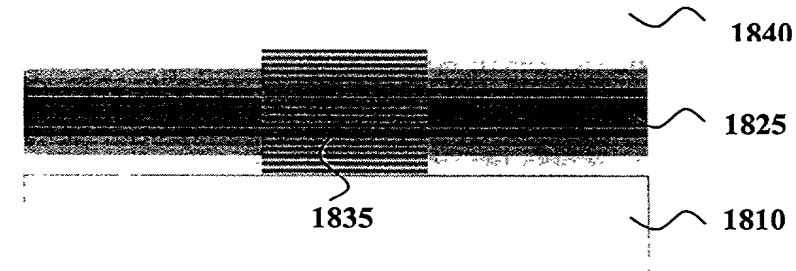
Cross sectional view

FIG 30C



Cross sectional view

FIG 30D



Cross sectional view

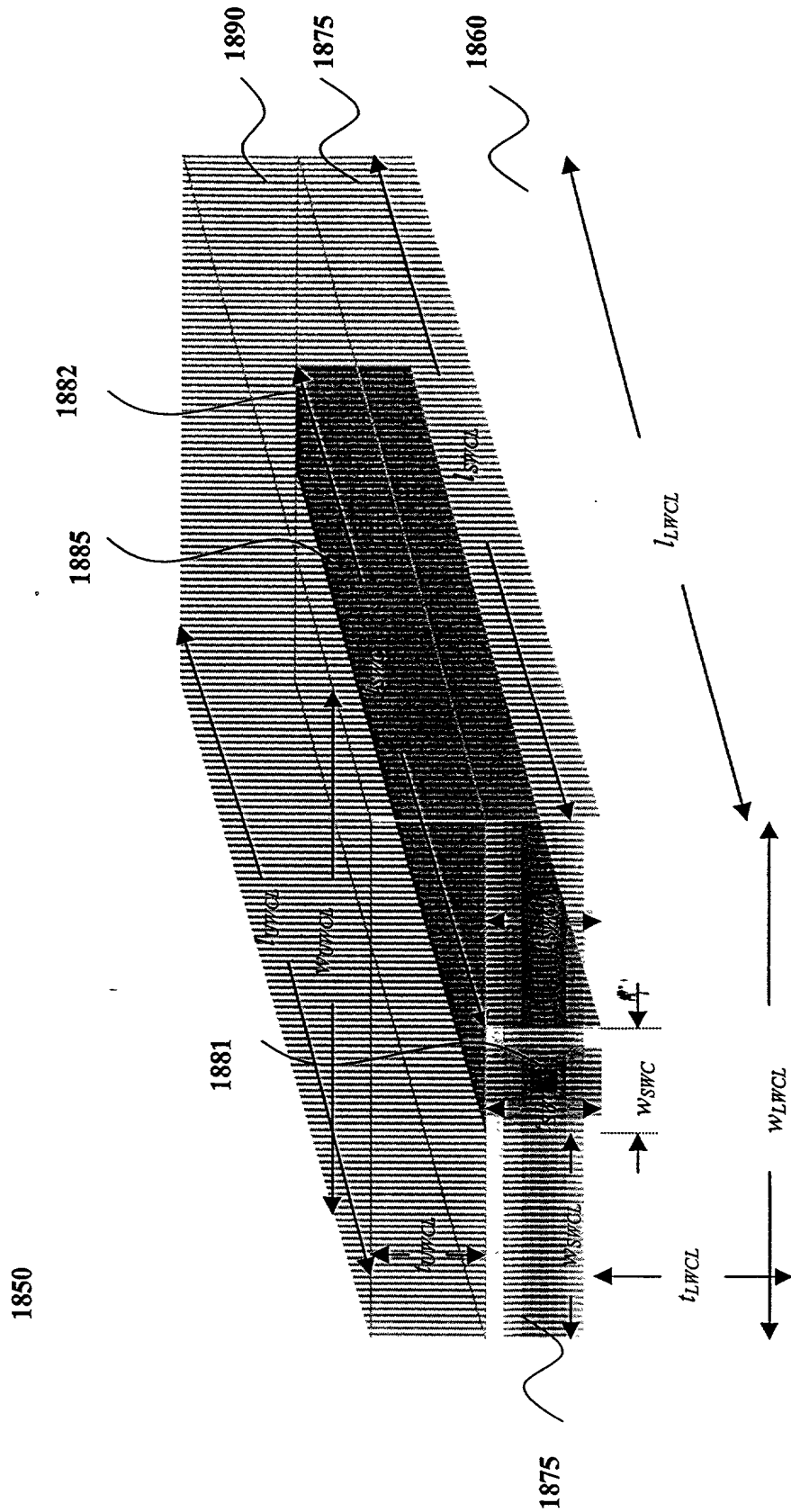
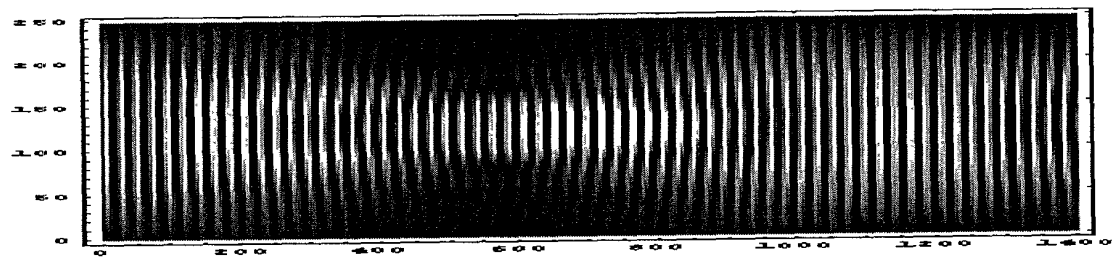
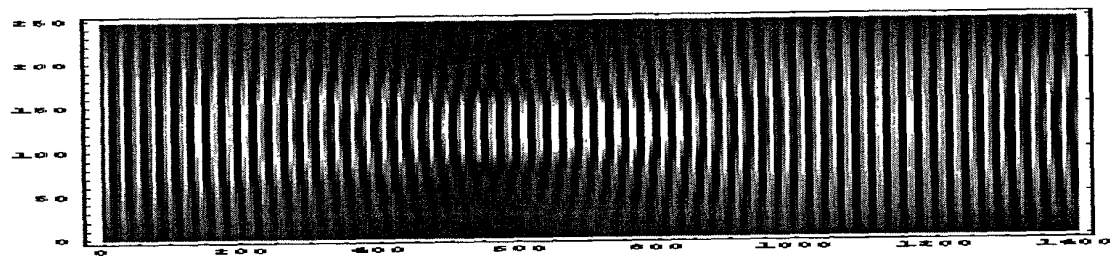


FIG 31



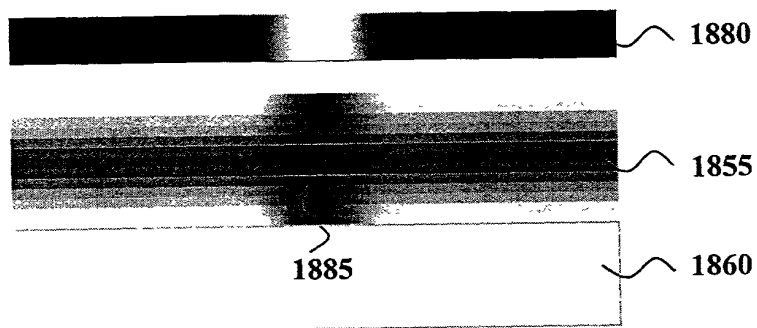
top view



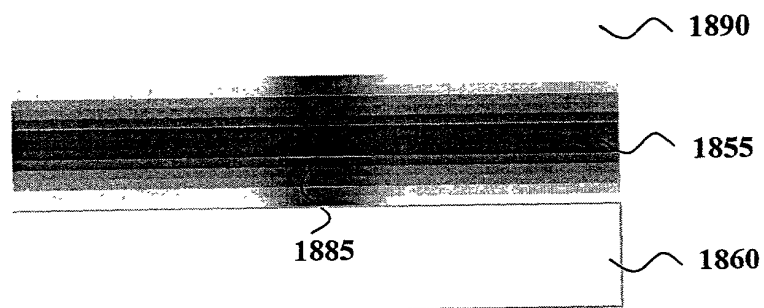
side view

Fig 32

FIG. 32



Cross sectional view
FIG 33A



Cross sectional view

FIG. 33B

TOP SECRET

1900

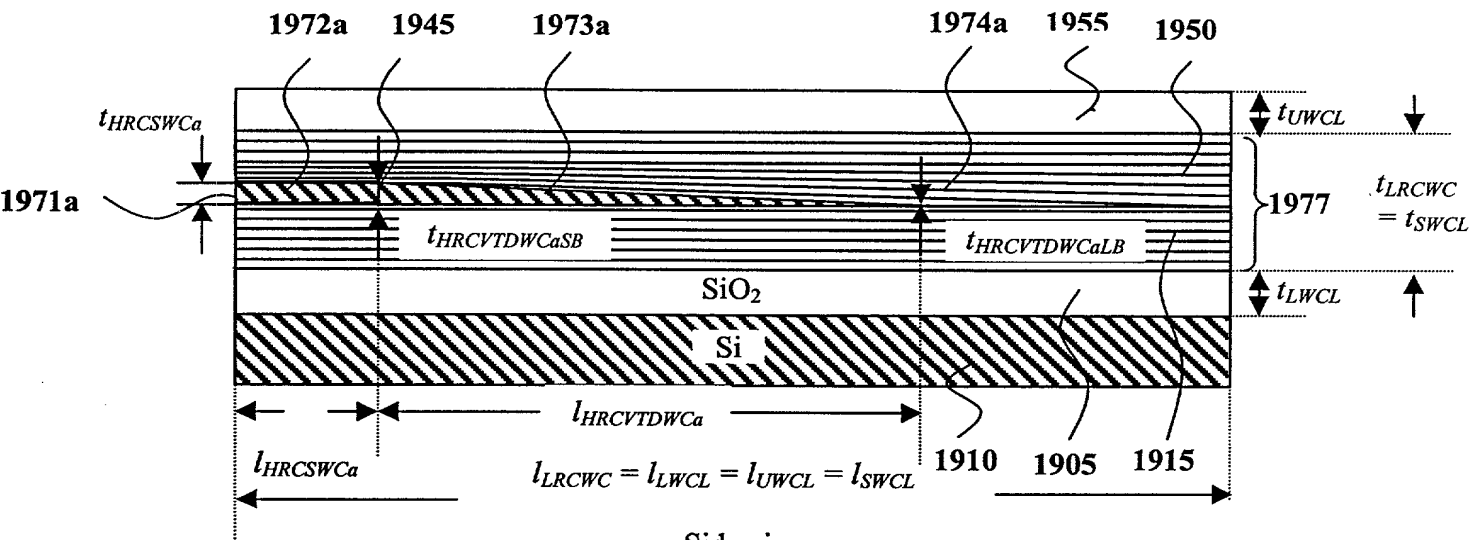


FIG 34A

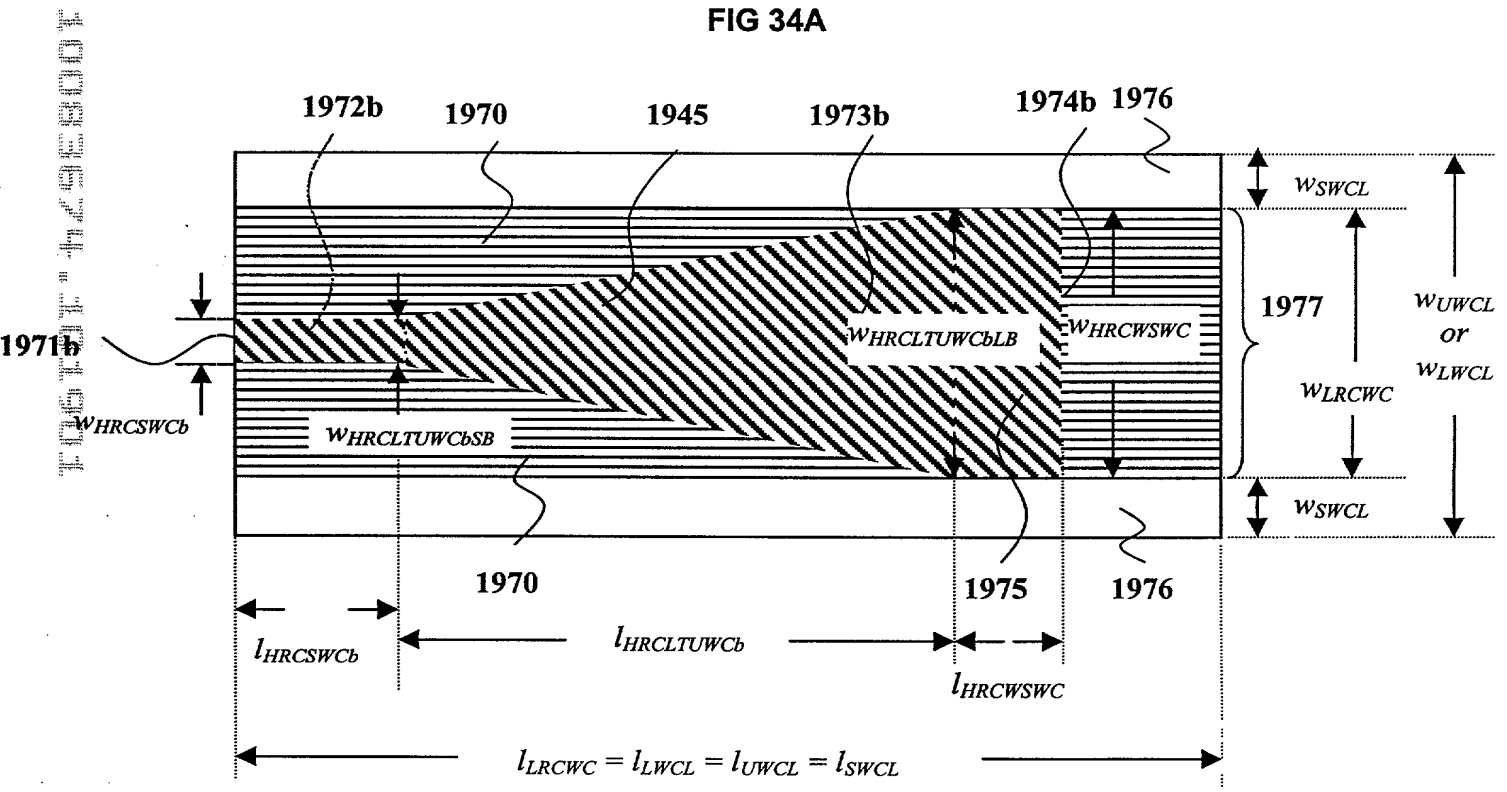
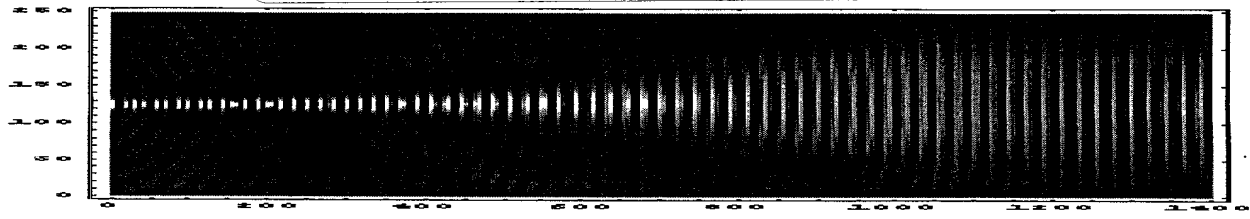


FIG 34B



Side view



Top view

Fig 35

TOP 4293001

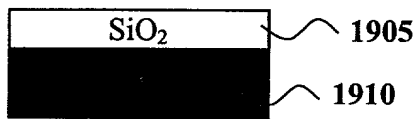


FIG 36A

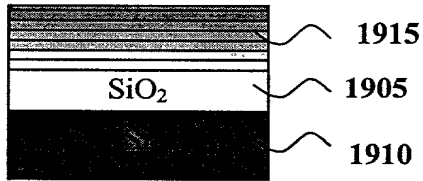


FIG 36B

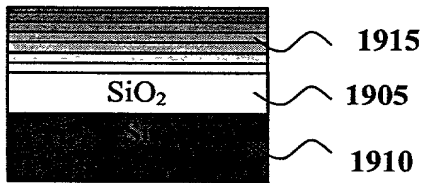


FIG 36C

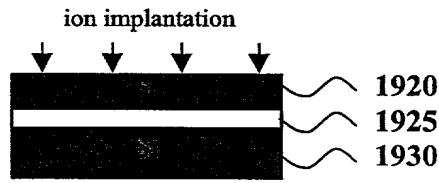


FIG 36D

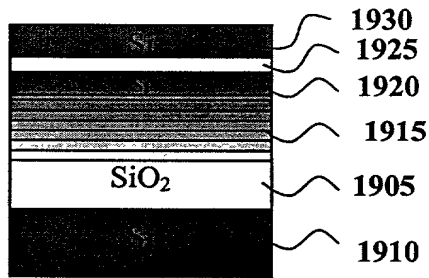


FIG 36E

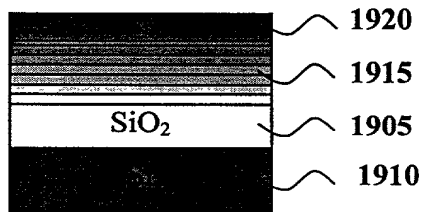
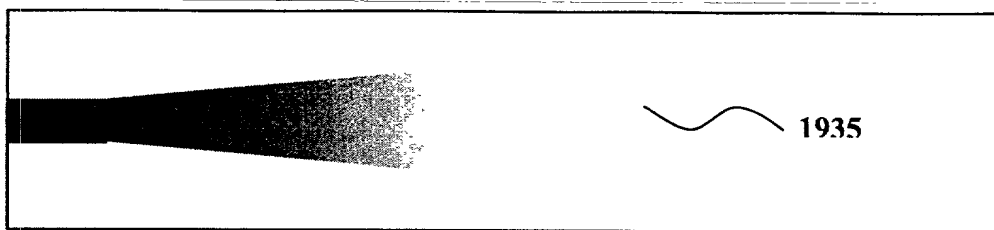
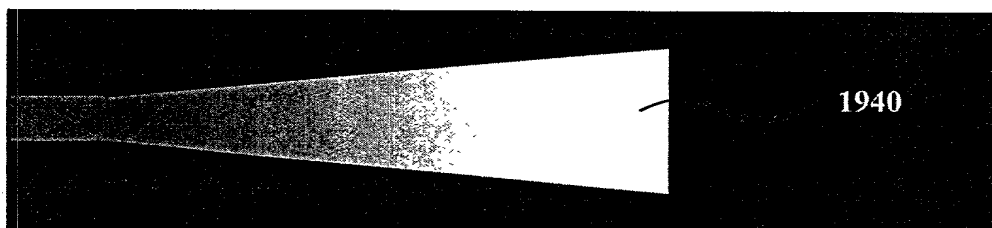


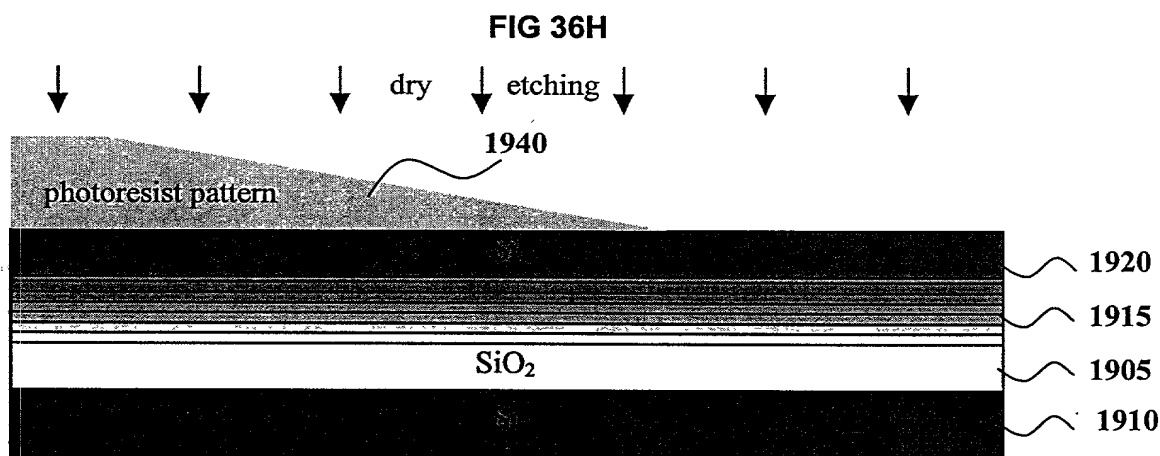
FIG 36F



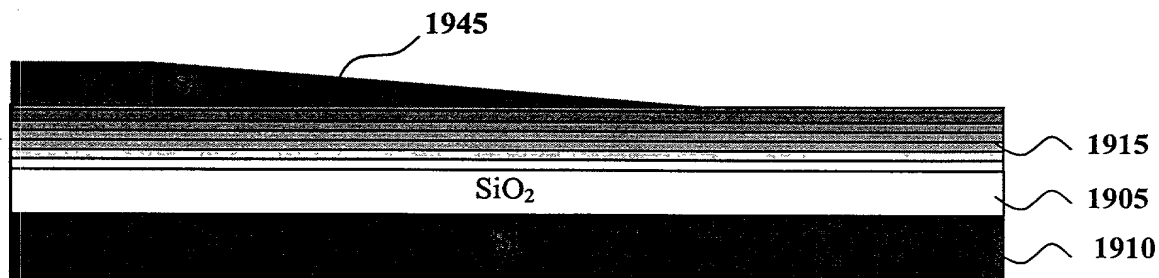
Mask top view



photoresist pattern top view

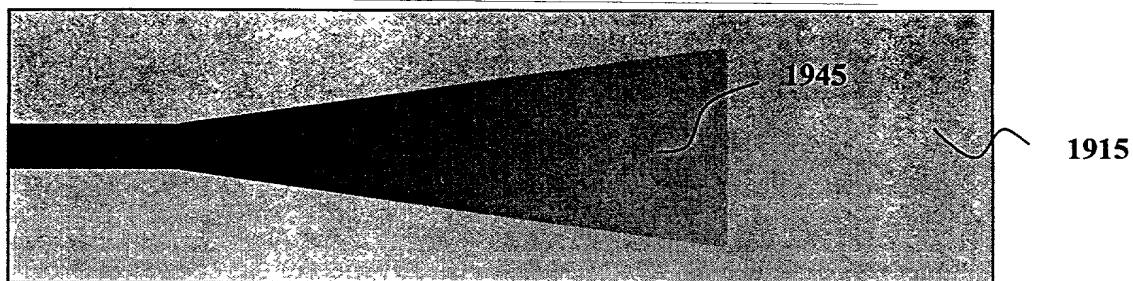


Side view

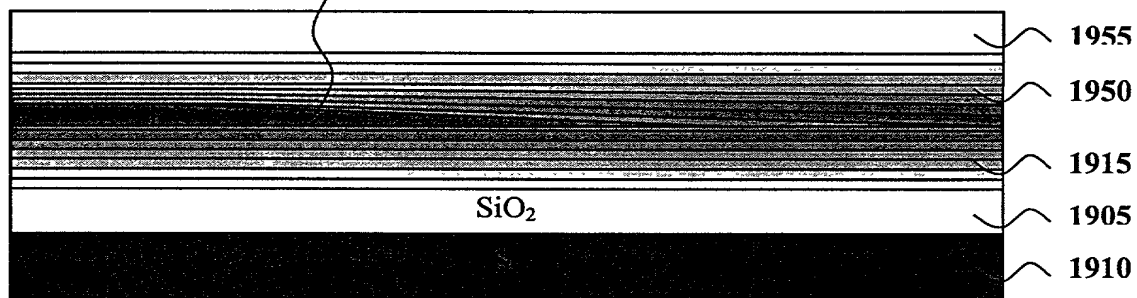


Side view

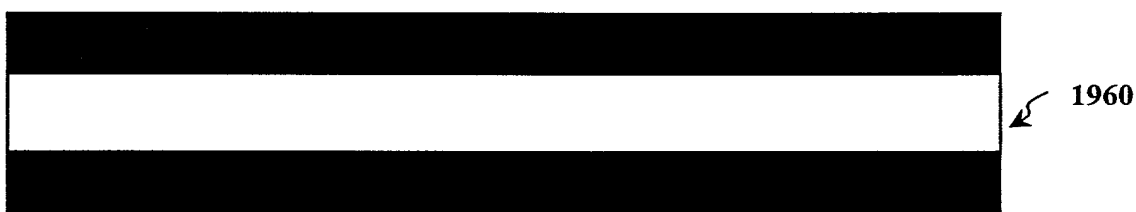
106101-498801



Top view
FIG 36K

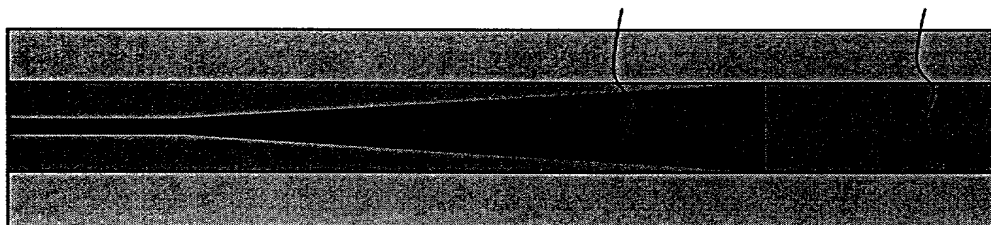


Side view
FIG 36L



mask

FIG 36M



Top view
FIG. 36N

106701-42968007

FIG 37A

Top view

FIG 37B

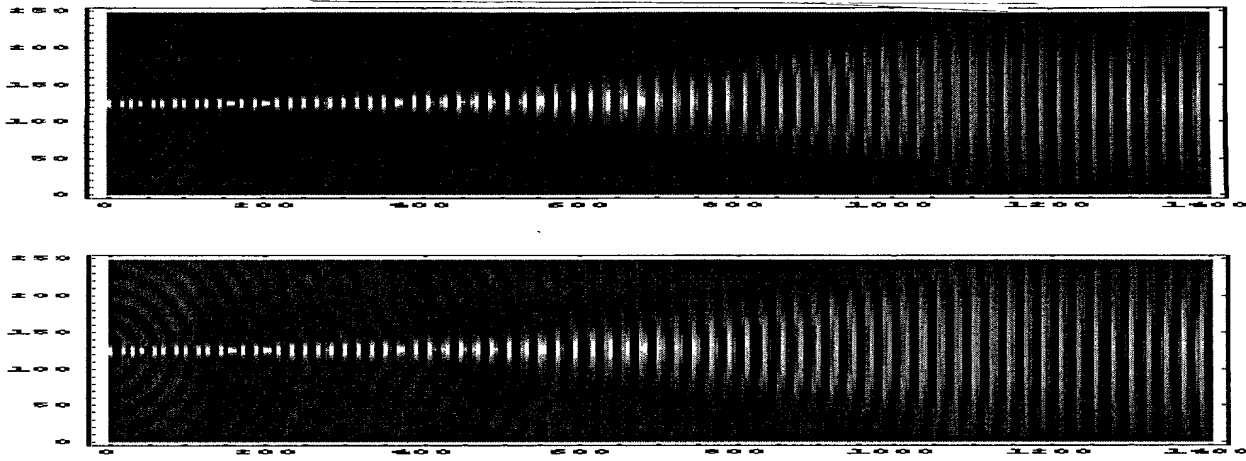


Fig 38

106707498007

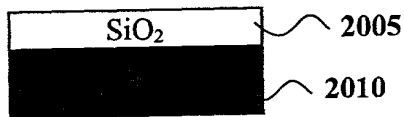


FIG 39A

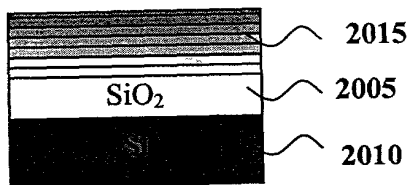


FIG 39B

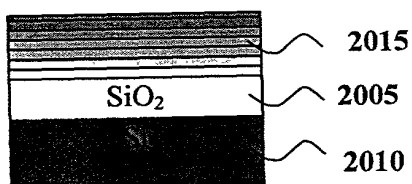


FIG 39C

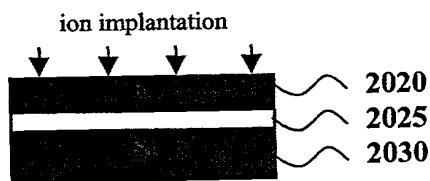


FIG 39D

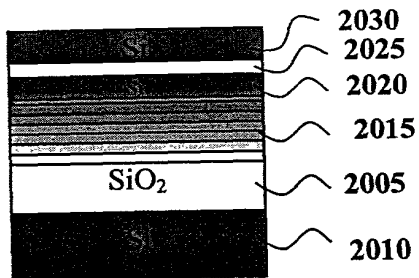


FIG 39E

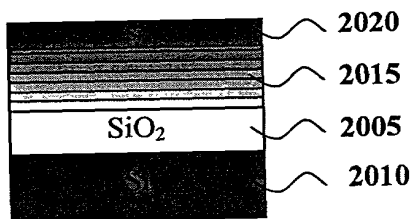
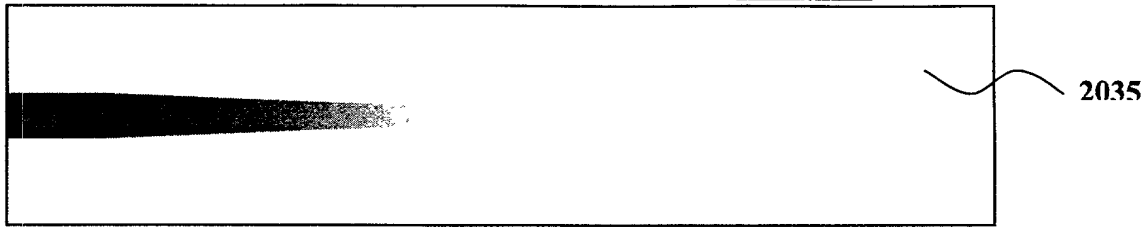
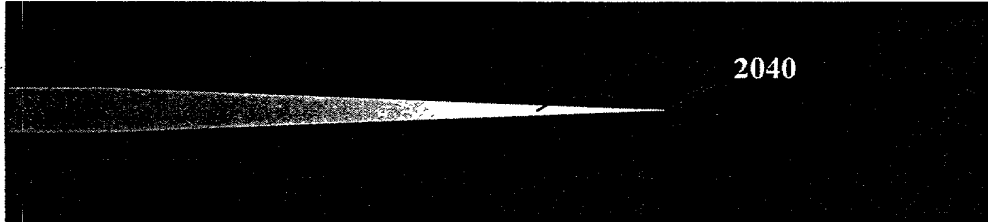


FIG 39F

FIG 39A

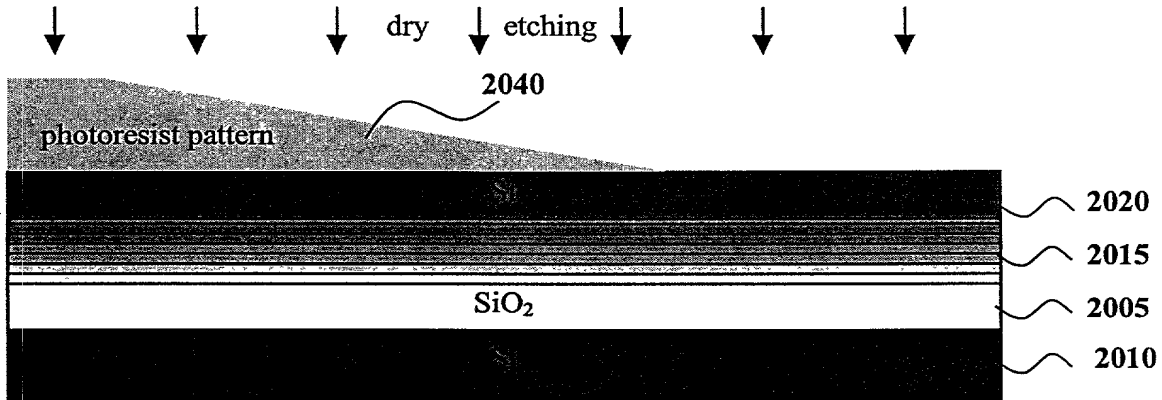


Mask top view
FIG 39G

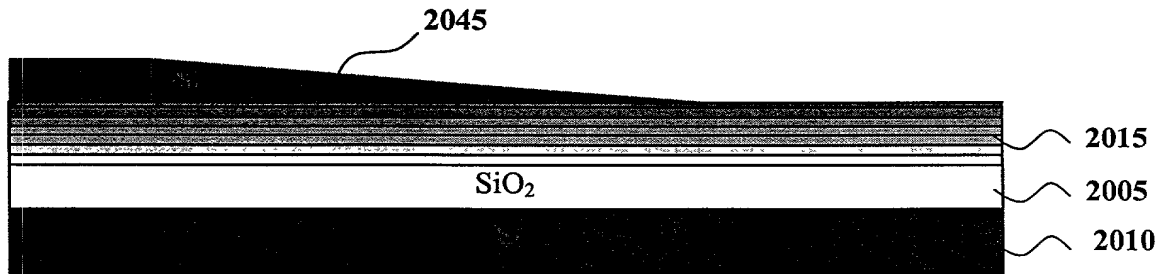


photoresist pattern top view

FIG 39H

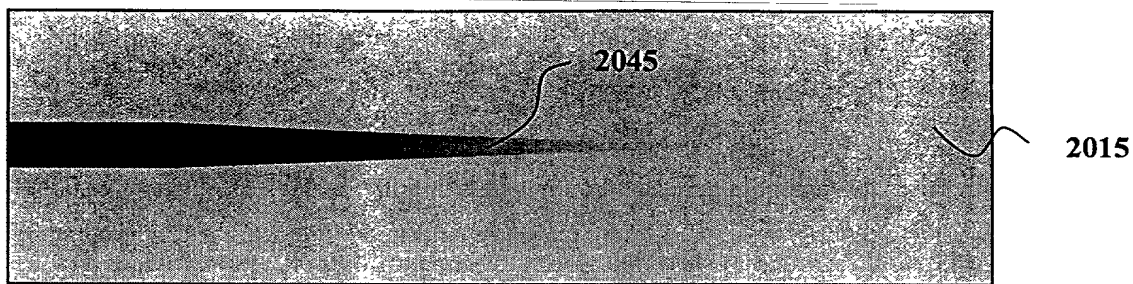


Side view
FIG 39I

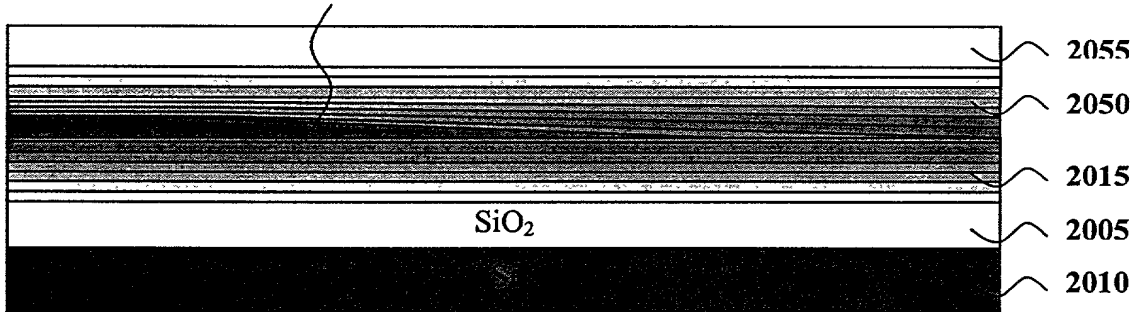


Side view
FIG 39J

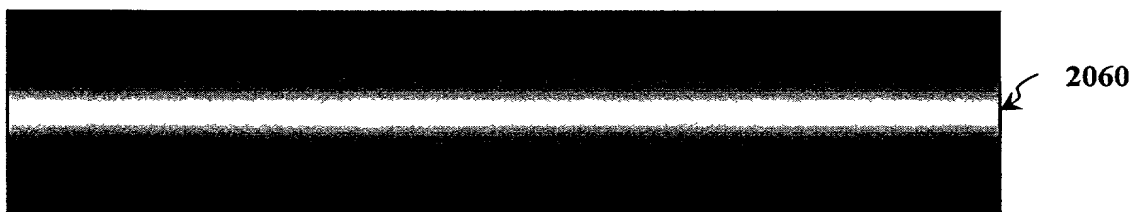
1008664-1001



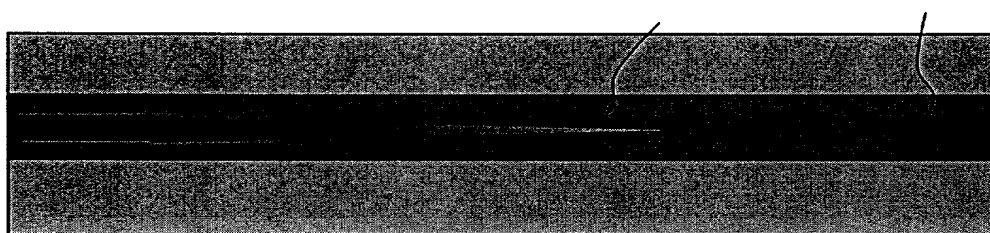
Top view
 FIG 39K



Side view
 FIG 39L

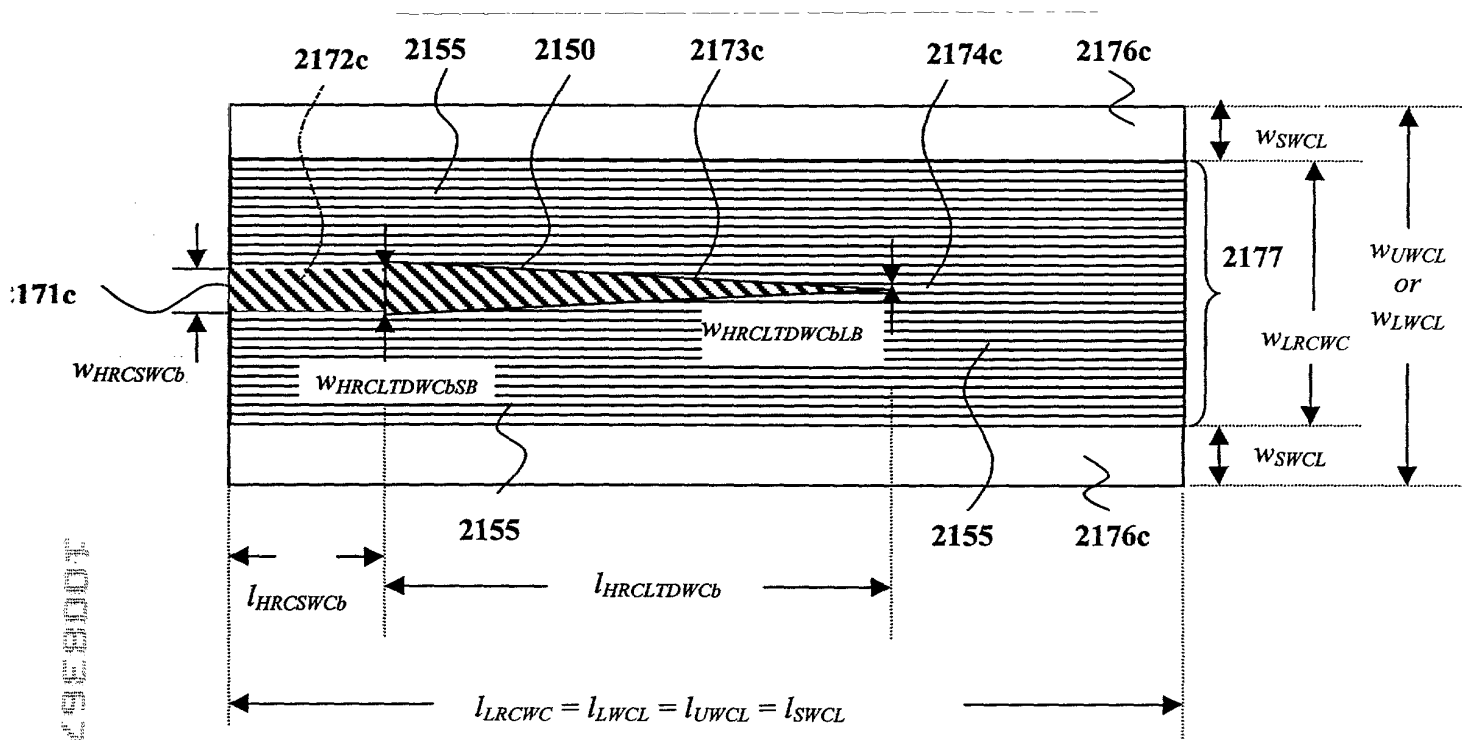


mask
 FIG 39M



Top view
 FIG. 39N

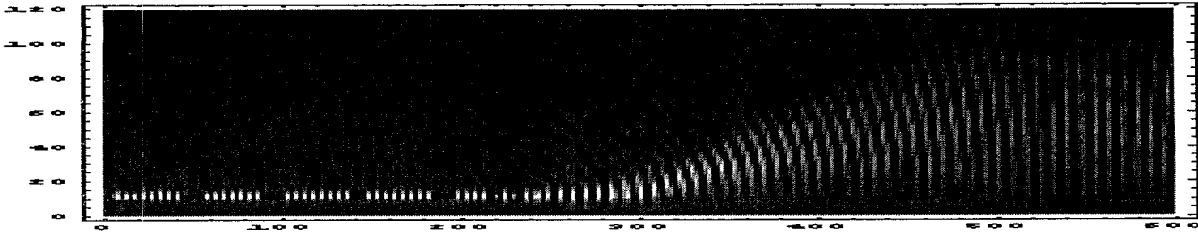
1003674-1001



Top view

FIG 40C

Taper side launching



GRIN guide side launching

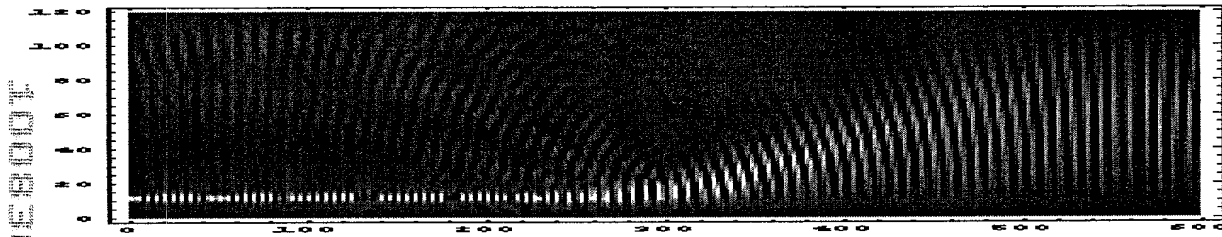


Fig 41

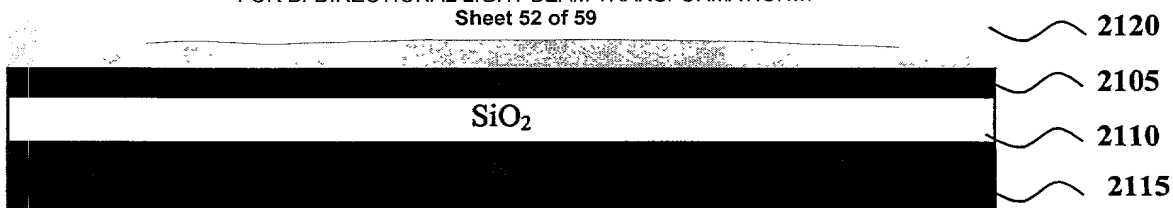
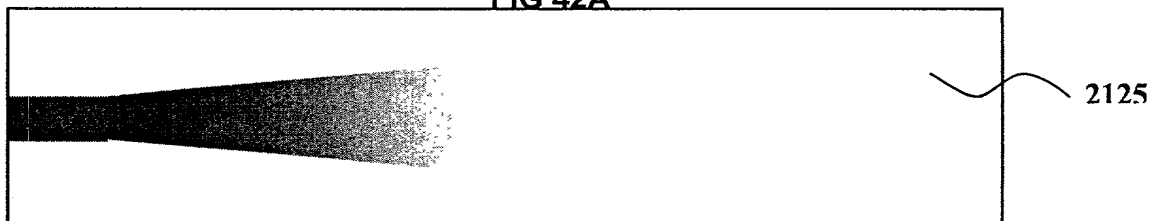
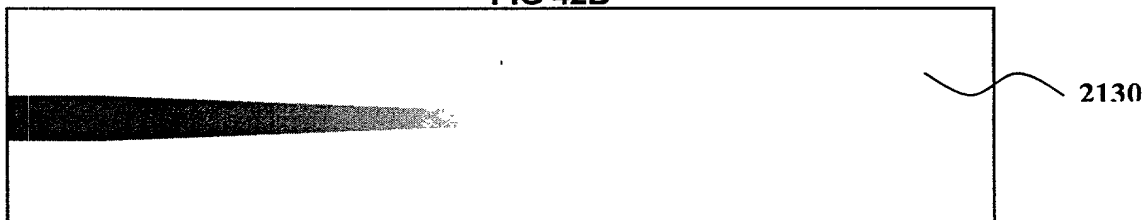


FIG 42A



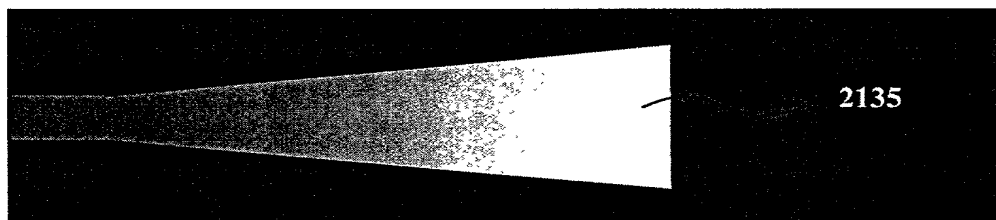
Mask top view

FIG 42B



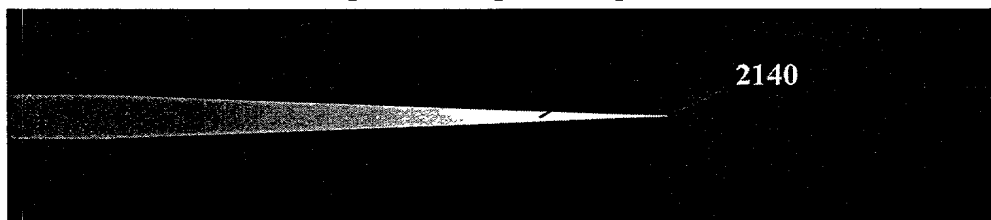
Mask top view

FIG 42C



photoresist pattern top view

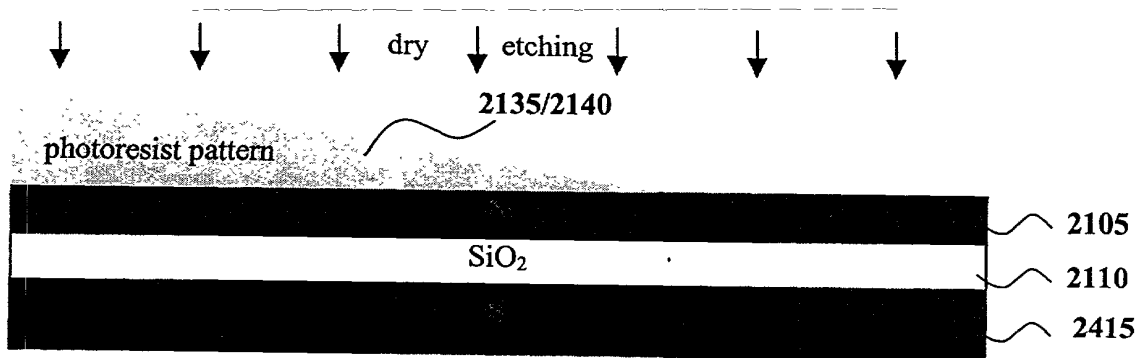
FIG 42D



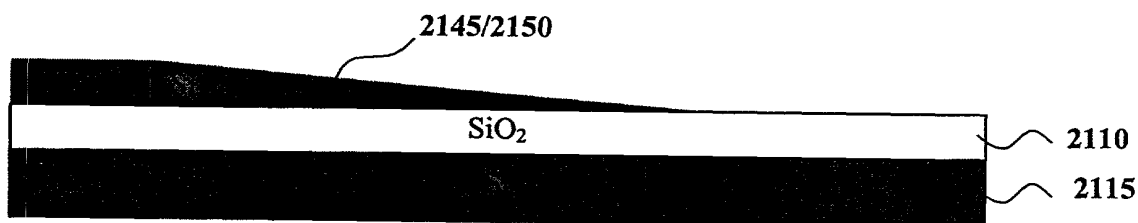
photoresist pattern top view

FIG 42E

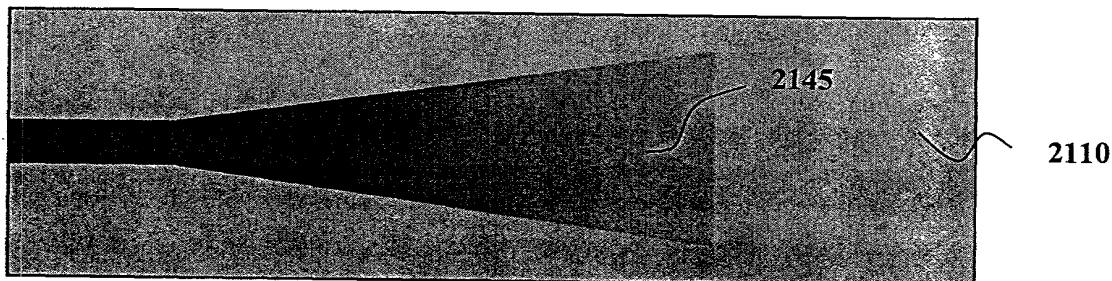
FIG 42A



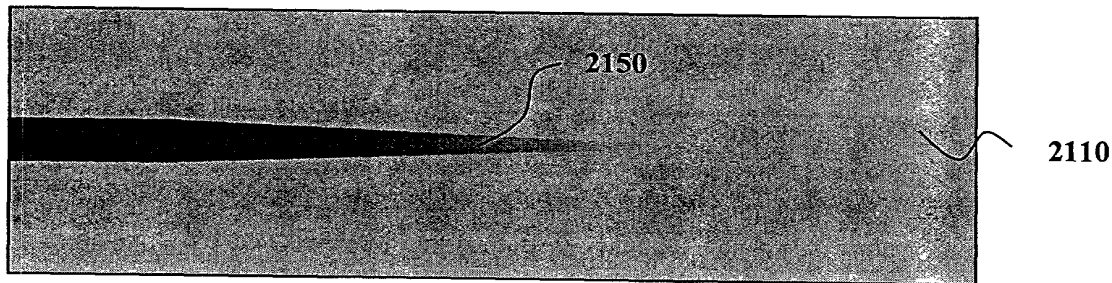
Side view FIG 42F



Side view FIG 42G

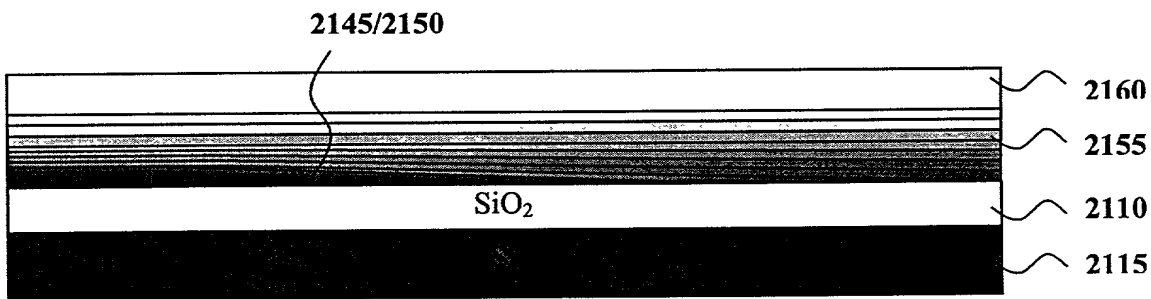


Top view FIG 42H



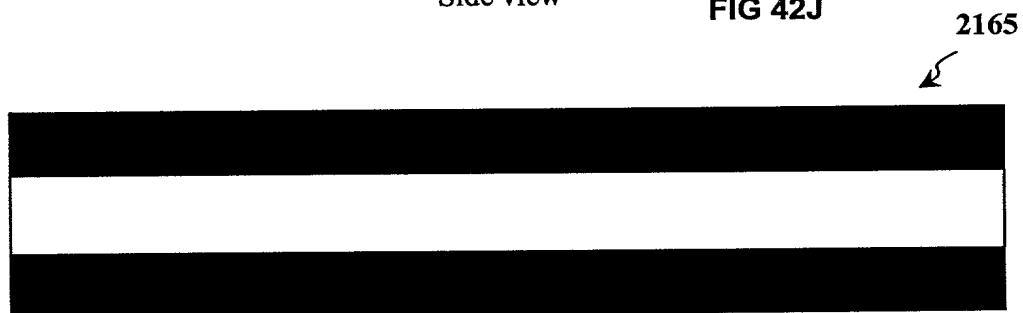
Top view
 FIG 42I

TOP SECRET



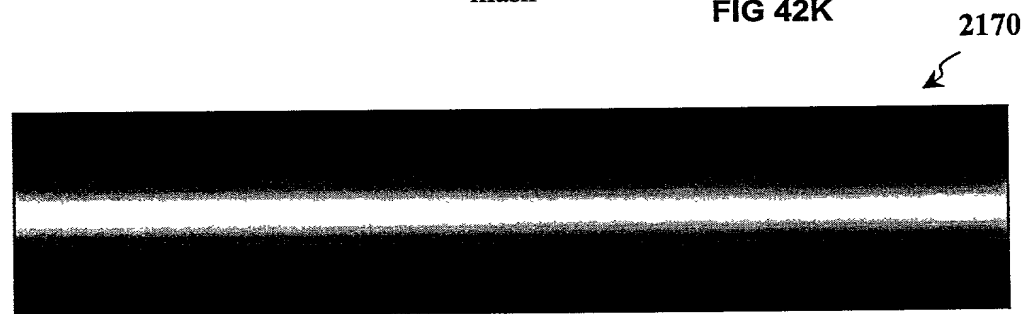
Side view

FIG 42J



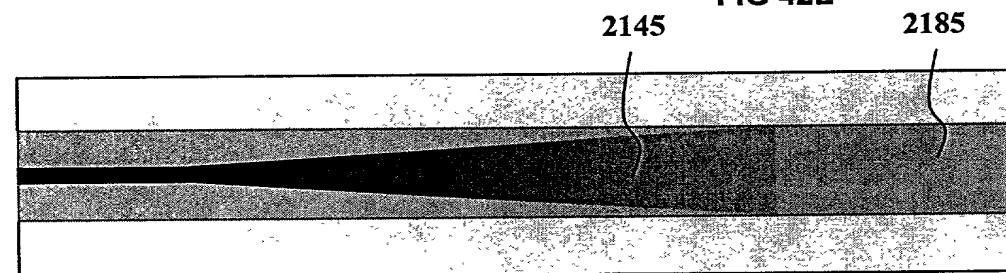
mask

FIG 42K



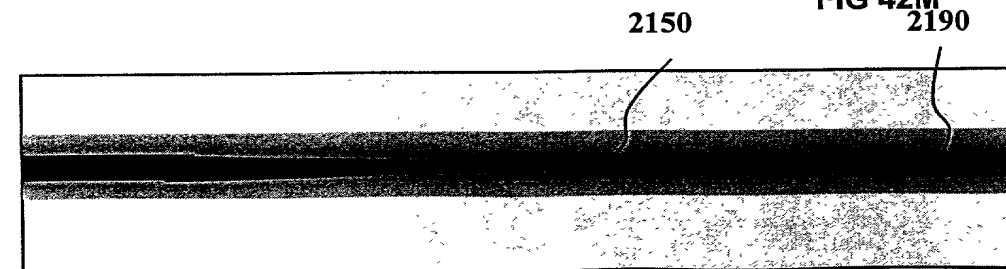
mask

FIG 42L



Top view

FIG 42M



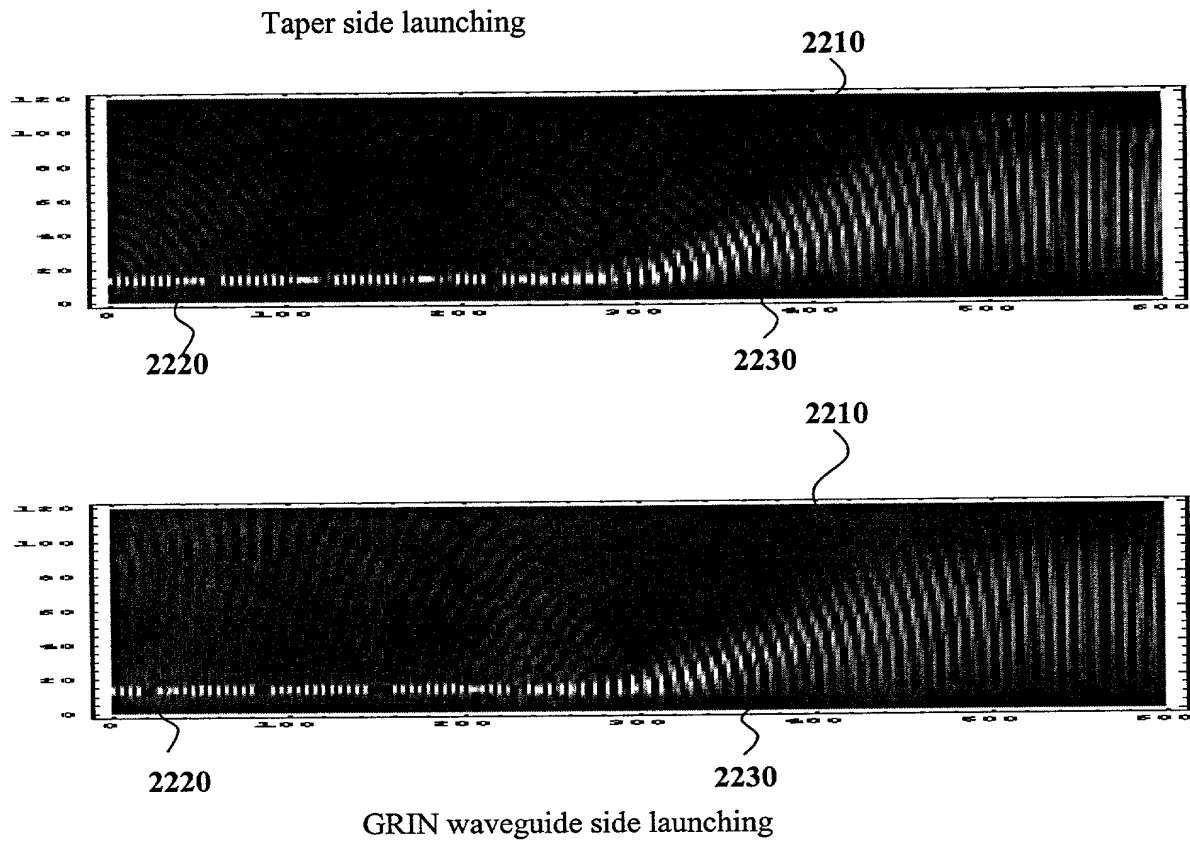


Fig 43

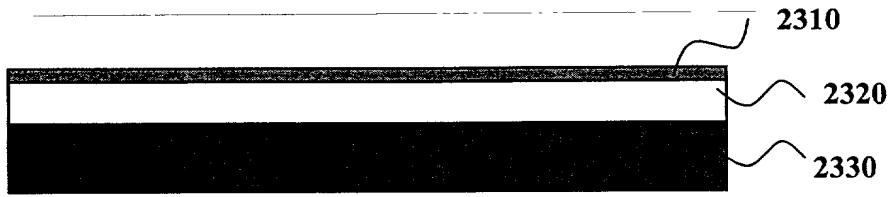


FIG 44A

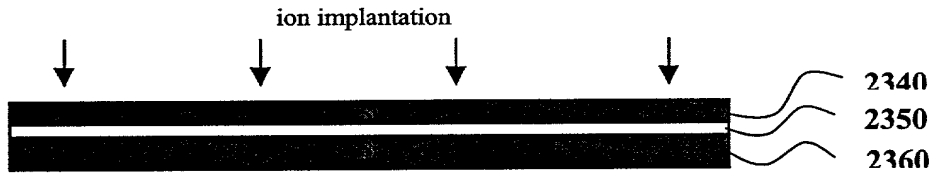


FIG 44B



FIG 44C

Fig 45A

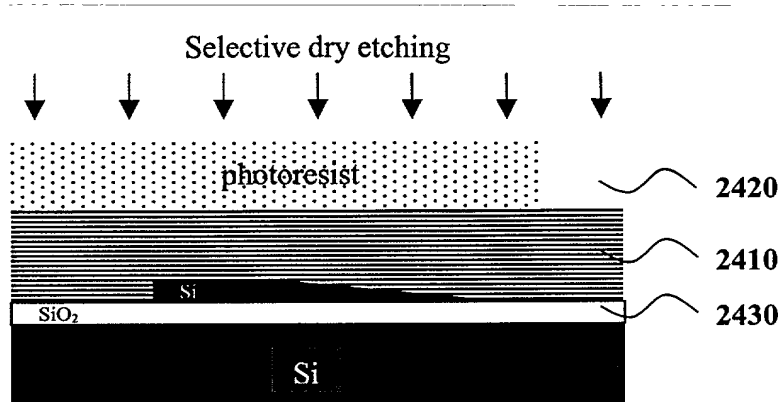


Fig 45B

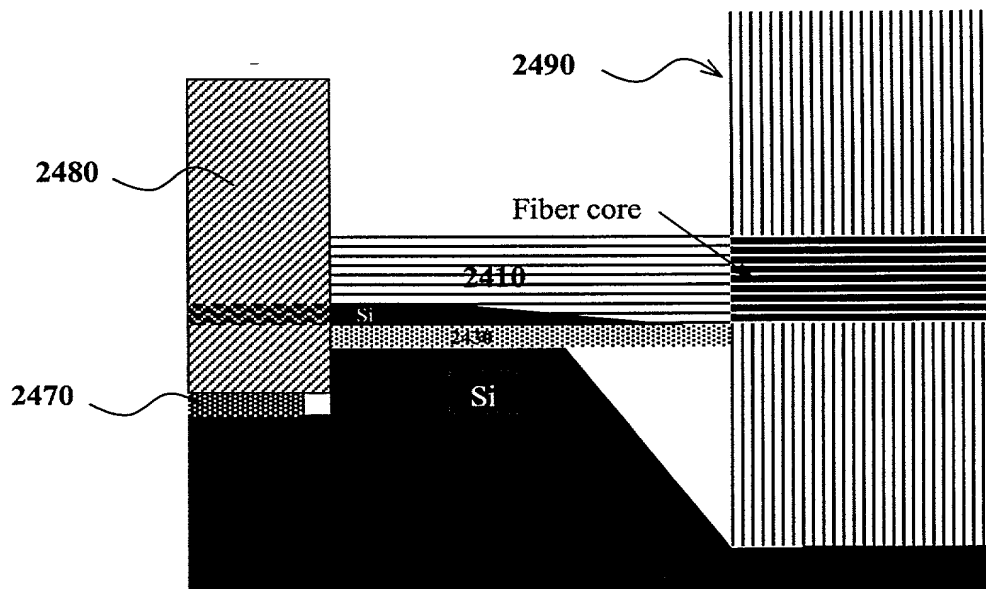
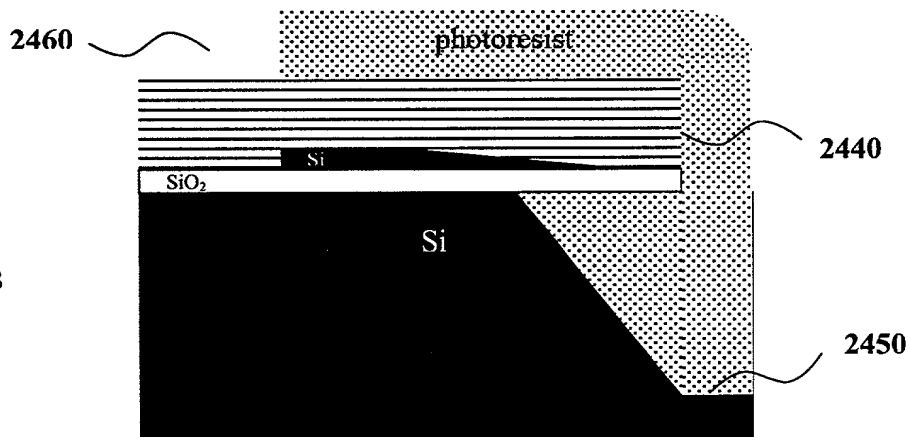


Fig 45C

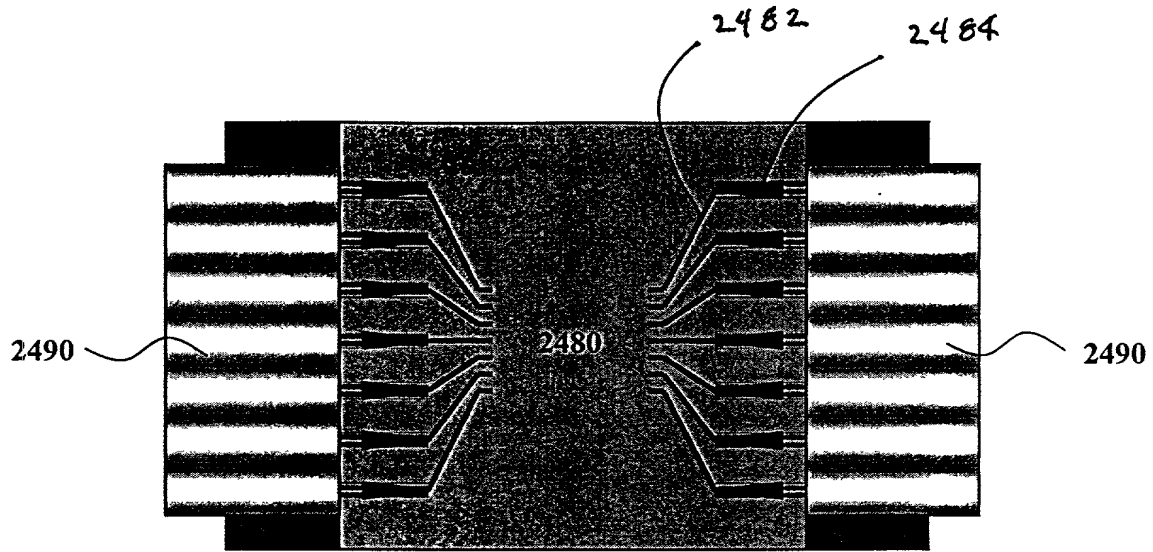


FIG 46

FIG 46

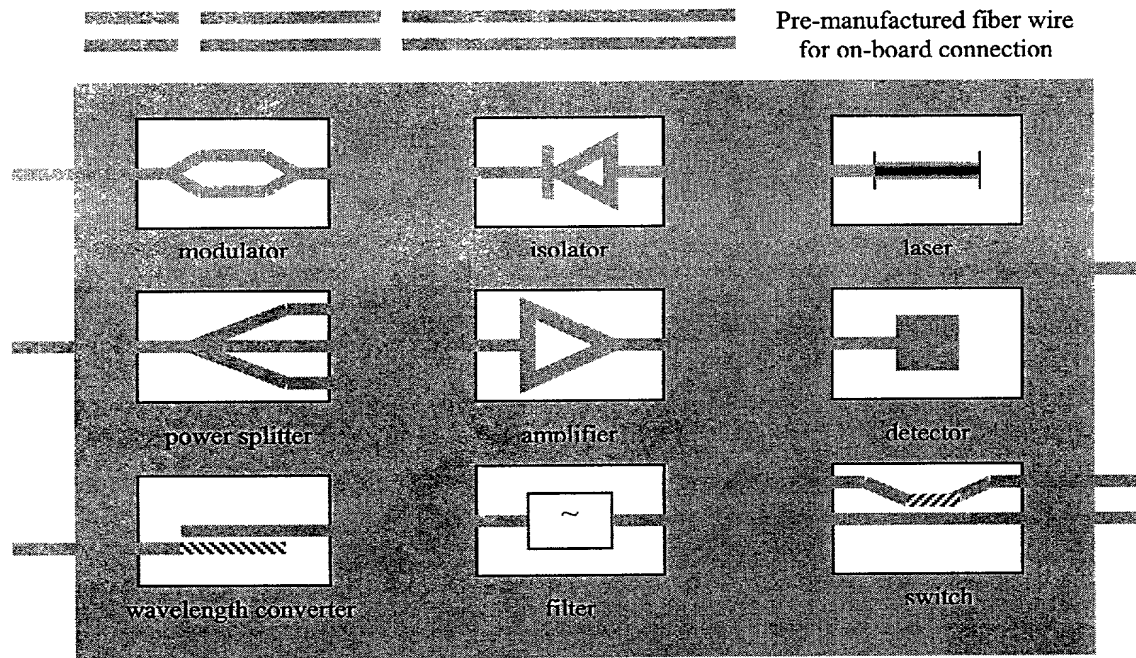


FIG 47